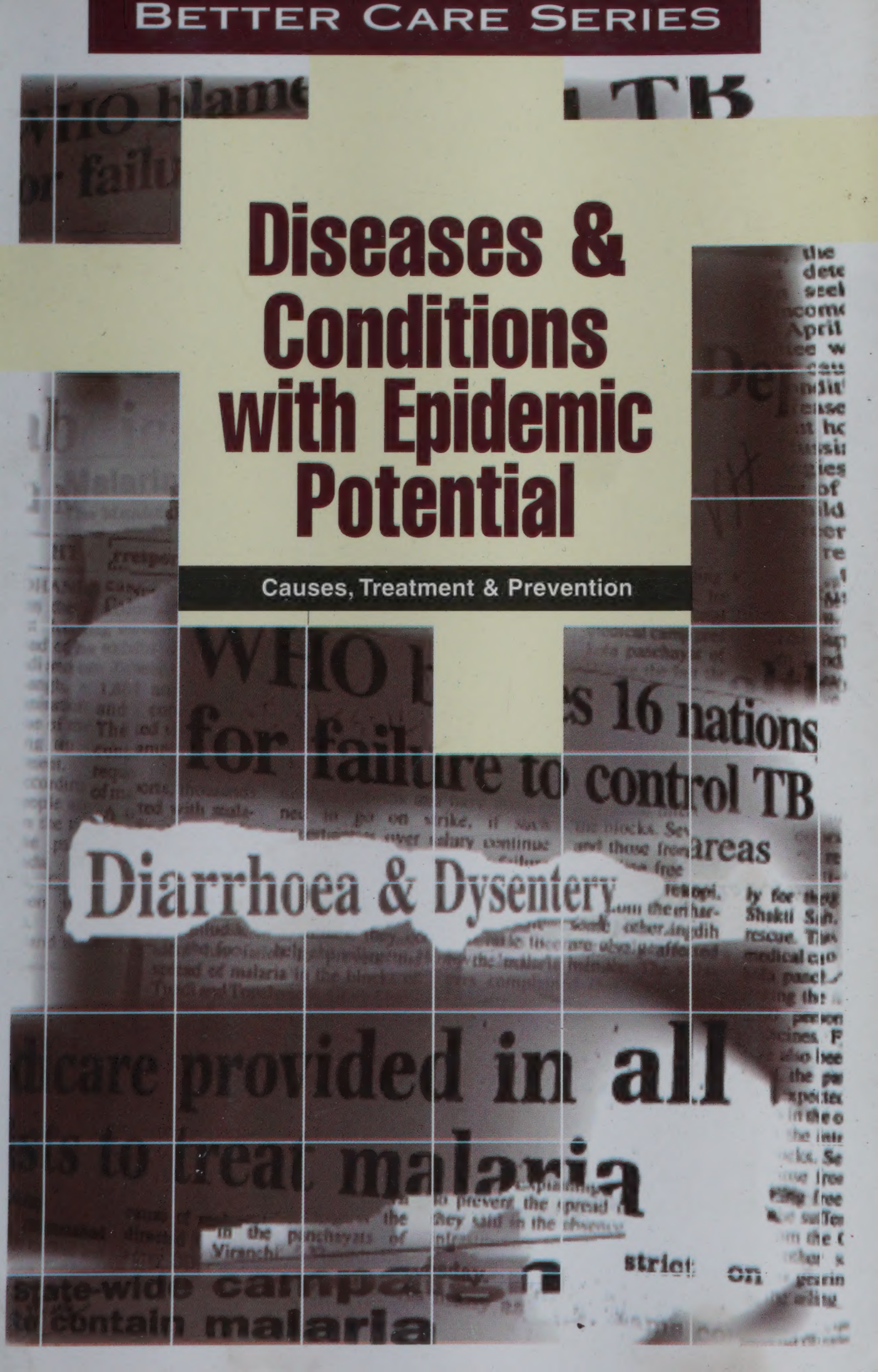
BETTER CARE SERIES

Diseases & Conditions with Epidemic Potential

Causes, Treatment & Prevention



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BETTER CARE SERIES

Diseases & Conditions with Epidemic Potential

: Causes, Treatment & Prevention

(A Handy Guide for General Public & Health Workers)

(Also available in Hindi)

Dr. Bir Singh

Voluntary Health Association of India
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Other books in Better Care series

- Tuberculosis
- Child Care
- Dengue and Dengue Haemorrhagic Fever

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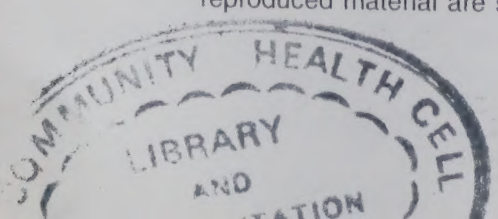

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Contents

Preface 5

PART ONE

Communicable Diseases

General Basic Concepts, Glossary 8

Section 1 : Mosquito-borne Diseases

Chapter 1 : Malaria 12

Chapter 2 : Dengue Fever 20

Section 2 : Diseases that spread through contaminated water, food, flies & poor personal hygiene

Chapter 3 : Typhoid Fever (including Para-Typhoid Fever) 26

Chapter 4 : Cholera,Diarrhoea & Dysentery Gastro-Enteritis, Food Poisoning 31

Chapter 5 : Viral Hepatitis (Jaundice, "*Peeliya*") 36

Chapter 6 : How to prevent diseases spread by water, food and poor personal hygiene ? (Cholera, Typhoid, Gastro-Enteritis, Diarrhoea & Dysentery, Food Poisoning, Viral Hepatitis) 40

Section 3 : Fevers with Body Rash

Chapter 7 : Chicken Pox 44

Chapter 8 : Measles 48

Section 4 : Miscellaneous

Chapter 9 : Conjuctivitis (Eye Flu) 54

Chapter 10 : Meningococcal Meningitis 57

Chapter 11 : Viral Fever, (including Common Cold, Flu) 59

Contents...

PART TWO

Non-Communicable Conditions

Chapter 12 : Epidemic Dropsy (*"Jalandar"*) 64

Chapter 13 : Heat Stroke (*"Loo Lagna"*) 67

PART THREE

Annexures

Annexure 1 : Administration of Chloroquine (anti-malarial) 70

Annexure 2 : Giving Paracetamol to patients with fever 71

Annexure 3 : Hydrotherapy 72

Annexure 4 : Steam Inhalation & Making Nasal Drops at home. 73

Preface

For last many years, one or the other health problem or a disease has been making big news in India. Be it Plague (1994), Dengue Fever (1996), Malaria (1997) Epidemic dropsy (1998), Heat stroke (1998, 1999) or Gastro-enteritis (1999), many people have been dying due to one or the other problem every year. Whenever a health problem/disease strikes an area, there is fear, anxiety and panic reaction from general public. The common person is worried about protecting himself/herself from such conditions. At that time, she looks for authentic information on that subject but sadly, finds that not much is available in printed form. What she gets is confusing and at times, incorrect information. That makes life miserable.

This book attempts to give technically and scientifically correct information on some such health problems/ conditions which have a potential to acquire epidemic forms and thus create widespread panic amongst general public. Technical words have been kept to the minimum and the language used is very simple (even at the cost of purity of the English language that might annoy some pundits! We seek their pardon in advance). Even in this era of internet and hitech information technology, printed material like this book will find a very useful role for the general public. This book is also available in Hindi.

Any suggestion/criticism about the book is most welcome by the author.

Bhavna B. Mukhopadhyay
Editor

Dr. Bir Singh
Author

Part One

COMMUNICABLE DISEASES

General Basic Concepts, Glossary

When did you last suffer from an attack of Common Cold ? May be a few days, weeks or months ago.

How do you think you got that gift of sneezing, running nose, headache, body aches and cough? Obviously from some one who was suffering already from it at your home, workplace, market or while travelling in the bus or a train.

Why did you get it ?

The person suffering from the common cold was very generously releasing millions and millions of tiny, Common Cold causing organisms in the air through bouts of cough or sneezing and you were somewhere nearby to have easily breathe them inside your body through the air !

This is probably one of the simplest examples of a **"Communicable disease"**.

Some Basic Concepts

Communicable diseases are those diseases which are caused by very tiny germs and spread from one person to the other person either directly or indirectly through living or non-living agents.

These tiny germs causing such diseases are so small that they can't be seen by naked human eye. We require gadgets like microscopes or electron microscopes to see them. Very often, these germs are classified as – bacteria, viruses. protozoa etc.

Examples of the living agents which help in spread of communicable diseases are – mosquitoes (spreading Malaria, Dengue fever etc.), house flies (spreading Typhoid fever, Cholera etc.) and various other types of insects and bugs. Similarly, non-living agents which

are responsible for transmission of some of the communicable diseases are – water, air, milk, food, clothes etc. We will know more about them as we proceed.

A number of communicable diseases afflict people in developing countries because standards of living, personal hygiene and environmental sanitation are not so good and disease causing germs have good chances of survival, growth and spread. India, like many other developing nations, also has to bear the burden of a large number of communicable diseases such as – Malaria, Tuberculosis (T.B.), Filaria, Leprosy, Cholera, Dengue fever, Diarrhoeal diseases, Measles, Chicken Pox, Sexually Transmitted Diseases like Gonorrhoea, Syphilis etc.

Table 1 outlines some of the common communicable diseases, the germs (organisms) causing them and the living or non-living agents which spread them from one person to another person.

In this section, we will discuss only some of these communicable disease which occur very commonly and whenever they occur, they are capable of assuming epidemic proportions – thus creating a lot of panic, fear and anxiety among general public.

The most heartening fact about the diseases being discussed here is that all of them can be prevented very easily. We just need to know about them and take some simple precautions.

One term which you will come across in this section very frequently is – **Incubation Period** (*Sankraamak Kal*). Please remember that as soon as a disease causing organism enters the body, it does not produce the symptoms of that disease in the body immediately. It takes some time to do so. Incubation Period is the time between entry of the diseases causing organisms into the body and appearance of first symptoms of that disease in the body. Obviously, it is different for each disease. It can be as short as a few hours (e.g. Conjuctivitis) and as long as a few days (e.g., Cholera), few weeks (e.g., Typhoid Fever), few months (e.g., Viral Hepatitis) or even years (e.g., AIDS).

Other terms commonly used for Communicable Diseases are -

Infection : It means presence of the disease causing germs in the body. This may or may not lead to development of disease.

Disease : Development of symptoms of a disease following an infection by the germs.

Acute : Something that starts suddenly.

Epidemic : When a large number of cases of a disease occur in an area which are clearly in excess of normal occurrence.

Case : A person with symptoms of a disease.

Carrier : A person who has the disease germs in the body but does not suffer himself/ herself from the disease. Obviously, he/she looks healthy from outside but is capable of spreading the germs to other persons.

Table 1

S. No.	Disease (in medical terms)	Disease (in common language)	Germs (Organisms) causing it	Spread mainly by
1.	Malaria	Malaria, *Joodi Bukhar*	Protozoa	Indirectly by Mosquitoes
2.	Tuberculosis of lungs	T.B., *Tapedik*	Bacteria	Directly by Air droplets
3.	Dengue Fever	*Haddi Tod Bukhar Kamar Tod Bukhar*	Virus	Indirectly by Mosquitoes
4.	Typhoid Fever	*Miyadi Bukhar Moti Jheera*	Bacteria	Indirectly by water, food & flies
5.	Viral Hepatitis	Jaundice, *Peeliya*	Virus	Indirectly by water, food
6.	Conjunctivitis	*Aankh dukhni ana*	Virus, Bacteria	Directly & by Flies
7.	Cholera	*Haiza*	Bacteria	Indirectly by water, food & flies & fingers
8.	Diarrhoea	*Dast Rog*	Bacteria, Viruses	Indirectly by water, food & flies
9.	Measles	*Khasra (Sheetia Mata)*	Virus	Directly by air droplets
10.	Rabies	Rabies, Hydrophobia	Virus	Indirectly by bites of dogs, monkeys, cats & some other animals.
11.	Scabies	*Khaaj*	Scabies bugs	Directly by skin to skin contact and indirectly by clothes
12.	Syphilis, Gonorrhoea (Sexually Transmitted Diseases)	*Suzak*, Aaatshak	*Spirochaetes* Bacteria	Directly through sexual contact
13.	AIDS	AIDS	Virus (HIV)	Mainly through sexual contact (There are other methods of spread also).
14.	Common Cold	*Zukaam Khaansi*	Virus, Bacteria	Directly through air droplets.

The list is indeed very long...

Section One

Mosquito Borne Diseases

Chapter 1
Malaria

Chapter 2
Dengue Fever

Chapter 1

Malaria

What is it ?

Malaria is a commonly occurring communicable disease that affects lakhs of people in India every year. For example just last year, more than 22 lakh people suffered from Malaria in India and more than 1000 people lost their lives due to this disease. It is such a common disease that even the World Health Organization's dictum is – " Every fever case is malaria unless proved otherwise".

Causative Organism

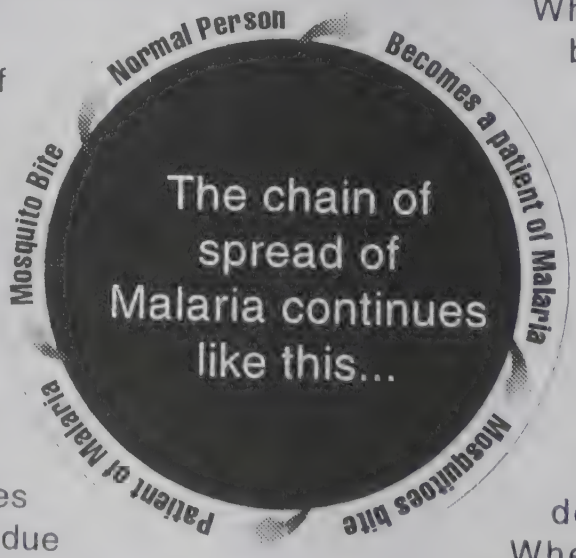
It is caused by a parasite called Plasmodium.

There are four types of this parasite :

Plasmodium *vivax*;
Plasmodium *falciparum*;

Plasmodium *malariae* and Plasmodium *ovale.*

While most of the cases of Malaria in India are due to Plasmodium *vivax*, deaths due to Malaria occur mainly when Plasmodium *falciparum* strikes some one and is not treated early and properly.



Spread

Malaria spreads from one sick person to another healthy person through the bites of mosquitoes. (For more eager persons, we may tell that female Anopheles mosquitoes spread this disease).

How does it spread ?

When some one suffers from Malaria, the Plasmodium parasites are present in some forms in the blood of the victim. Female anopheles mosquitoes require human blood as their meal. When a mosquito bites a patient, it sucks blood. With blood, the Plasmodium parasites also enter the body of the mosquito. Within the body of the mosquito, these parasites develop further. When this parasite carrying mosquito bites a normal human being, it injects the malaria parasite into the blood of that person and he/she becomes the next victim of Malaria.

- **Season :** Though malaria occurs throughout the year, maximum number of cases of malaria in India occur between July to October. It is called as Malaria season because it coincides with increase in mosquito population due to monsoon months (July-September).

- **Incubation Period :** After a normal person is bitten by the parasite carrying mosquito, it takes about 10 to 15 days for symptoms of malaria to develop in such a person.

- **Symptoms :** Generally it is believed that Malaria causes fever which comes every third day with shivering. However, these days, it is not true. A person may or may not have the symptoms of Malaria often described by our grandparents.

Classical symptoms of Malaria

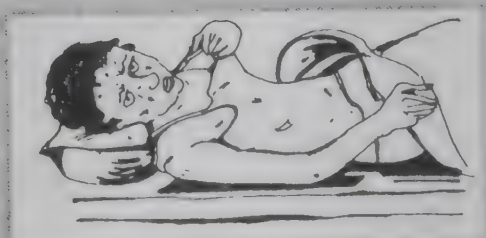
- Onset of sudden fever – going upto 103° - 104°F, sometimes even higher – accompanied with shivering (*Kamkapi*) and feeling of cold (*Jaada Lagna*). This stage lasts for 1- 1½ hours and the person wants to be covered with blankets and quilts even in summer months.

- The person often has severe headache and nausea with fever and may occasionally vomit also. Despite high fever, the skin feels cold.

- The person may remain normal for next 2-3 days and the fever comes again on 3rd or 4th day.

- After 1 –,1½ hours, feeling of intense heat follows this stage and the patient wants to get rid of all blankets, quilts and even his/her clothes. Fever and headache continue. This stage may last for 2-6 hours.

- This stage is followed by profuse sweating and coming down of fever. The person feels better. Headache diminishes.



However, these days, it is often seen that the stages of Malaria described above may not be seen at all and simply, the patient has continuous fever, headache, body aches and feeling of nausea. Vomiting may also be present. The person feels very weak and does not feel like eating.

If some one suffers from Malaria in your household, it is likely that you may have more members in family developing this disease.

Treatment

Malaria is a curable disease. Most of the cases can be diagnosed by clinical symptoms alone. There are effective medicines (like chloroquine) available to cure it completely. If malaria is resistant to chloroquine, there are other medicines also available to take care of that.

Take full course of anti-malaria drugs as prescribed.
(See Annexure 1).

If you are pregnant, always tell the doctor/ health worker about it so that right medicines are prescribed for you.

Never ever take anti-malarials on empty stomach. With these medicines, it is also advised to drink lots of fluids.

What should you do if some one has symptoms which may indicate Malaria ?

- Don't panic and seek medical consultation from a doctor or a health worker
- Make the patient comfortable and give a dose of paracetamol tablet or syrup as per patient's age. Patients of more than 30 Kgs. body weight can be given one 500 mg. Tablet of paracetamol. (***See Annexure 2***).
- Give lots of fluids to drink to the patient.
- Always get a blood slide made by a doctor/ health worker for correct diagnosis of Malaria. It is best to get this slide made when fever is present.
- Take anti-malarial drugs as per the medical advice. Remember that anti-malarial drugs have always to be taken after you have eaten something. Preferably, take them with milk.
- Don't allow fever to go beyond 102°F. If fever is more than 102°F, carry out hydrotherapy. (***See Annexure 3***).
- Keep a watch for symptoms of **cerebral malaria** which can be a deadly disease if not treated promptly.

A patient developing cerebral malaria is likely to have the following symptoms along with other symptoms of malaria described earlier :

- Stiffness in neck
- Throws a convulsion (epilepsy or *mirgi* like fits of the body).
- Becomes drowsy or loses consciousness or is showing abnormal or incoherent behaviour.

If you notice even one of these symptoms, seek urgent medical help. Better still, take the patient to the nearest bigger hospital.

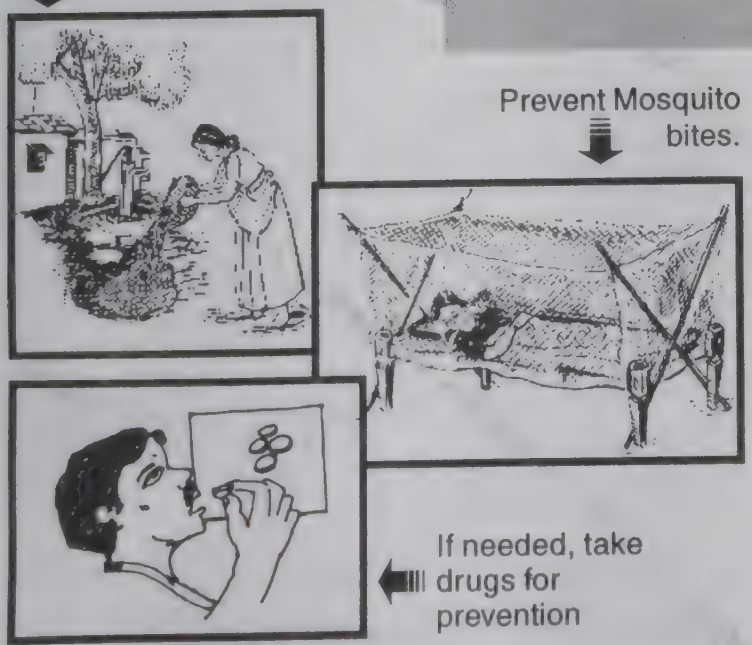
Avoid taking the patient to *ojhas* or *Jhad-phoonk Tantriks* etc. That can be dangerous.

- If a patient passes black or very dark coloured urine, seek urgent attention.
- Don't stop feeding of the patient, especially of young children. Give easily digestible, soft food. Frequently feed the patient small quantities of food.
- Give full course of anti-malarial drugs so that the Malaria parasite is completely eliminated from patient's body and thus, it does not spread to others through mosquito bites.

For this

Prevent Mosquito breeding

PREVENTION OF MALARIA



Prevent Mosquito bites.

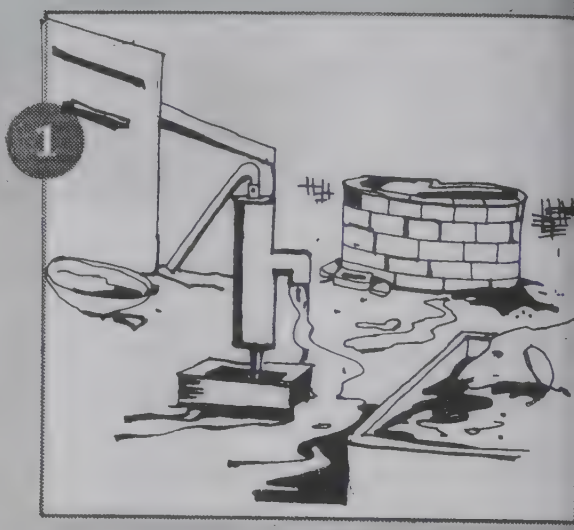
If needed, take drugs for prevention

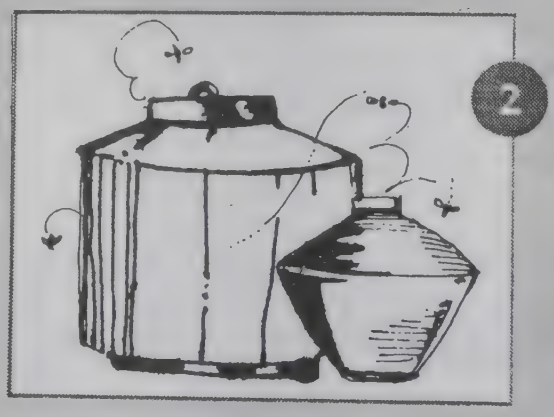
As so often said, prevention is always better (and cheaper !) than cure. You can easily prevent Malaria. Just ensure that mosquitoes don't breed within and around your home and you are protected from their bites. For this, each one of us has to just undertake a few simple measures :

For Protection against mosquitoes

Mosquitoes breed in water sources such as stagnant water in drains and ditches, room air coolers, broken bottles, old discarded tyres, containers and similar sources.

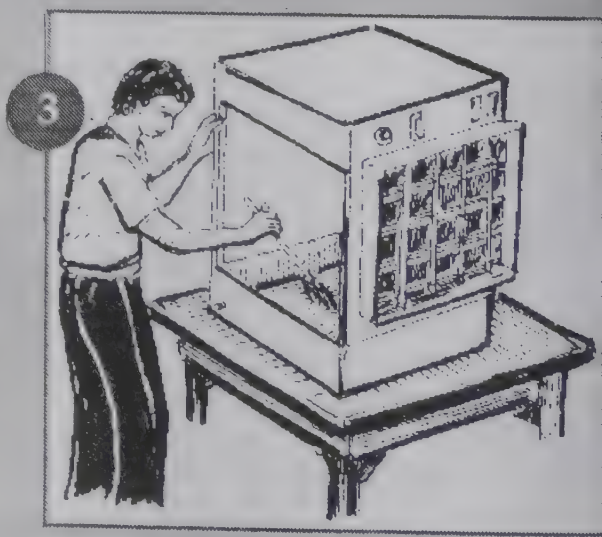
Don't allow water to remain stagnant in and around your house. Fill the ditches. Clean the blocked drains. Empty the room air coolers and flower vases completely atleast once in seven days and then refill them. Dispose off old containers, tins and tyres etc. properly.





Keep the water tanks and water containers tightly covered so that the mosquitoes can not enter them and start breeding.

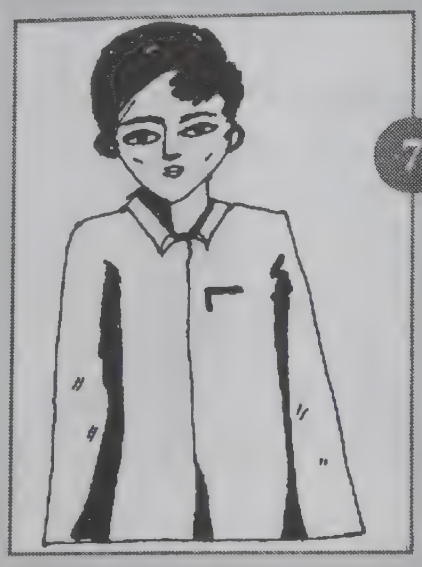
Wherever it is not possible to completely drain the water off from room cooler, water tanks etc., it is advised to put about two tablespoons (30 ml.) of petrol or kerosene oil into them for each 100 litres of water. This will prevent mosquito breeding. Repeat it every week.



You can also put some types of small fish like Gambusia, Lebister (which eat mosquito larvae) into these water collections. These fish can be obtained from the local administrative bodies (e.g., Block Development Officer's office in the area).

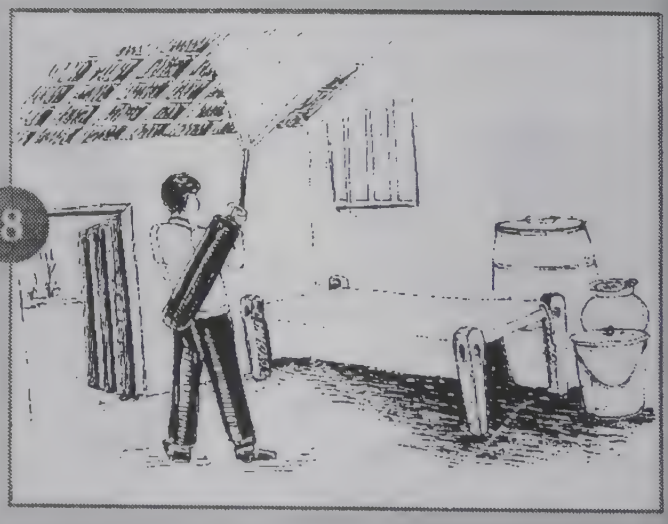
Wherever possible, practicable and affordable, prevent entry of mosquitoes into the house by keeping wire mesh on windows and doors.

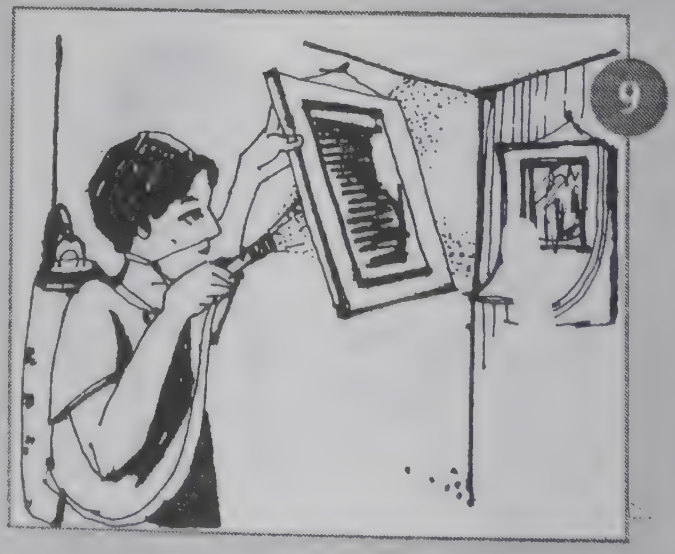
Use mosquito repellent sprays, creams, coils, mats or liquids to drive away/ kill the mosquitoes. Use of *googal* smoke is a good indigenous method for getting rid of mosquitoes. At night, using mosquito-nets prevents mosquito bites. Citronella oil and *neem* leaves are also good mosquito repellants.



Wear clothes which cover the body as much as possible. This is more relevant in case of children. Nickers and T-shirts are better avoided during the season of Malaria and Dengue fever, i.e., from July to October.

Don't turn away spray workers whenever they come to spray your house. It is in your own interest to get the house sprayed.





Use insectcide sprays within the house atleast once a week. Don't forget to spray behind the photo-frames, curtains, calendars; corners of house, stores.

10

Keep the surroundings of your house clean. Don't litter garbage. Don't allow wild herbs etc. to grow around your house (atleast in a radius of about 100 metres around your house). They act as hiding and resting places for mosquitoes.

Do inform and take help from your local health centre, panchayat or municipality in case you notice abnormal density of mosquitoes or if too many cases of fever are occurring in your area.

11

Prevention of Malaria by drugs (Chemoprophylaxis)

If you are travelling to an area where Malaria occurs in high frequency or in situations, where you don't want to fall sick due to malaria (e.g., students during examination days), you should take anti-malarials such as – Chloroquine or pyrimethamine every week as per advise of the health worker. (e.g., Persons above 14 years of age should take two tablets of Chloroquine on a fixed day – every week). Such medicines have to be taken without fail every week on a fixed day. You must start taking these medicines one week before you actually want the protection to start. Continue to take these medicines for about 5-6 weeks after you desire the protection to end.

Chapter 2

Dengue Fever

What is it ?

Dengue fever is a common communicable disease characterized by occurrence of high fever, severe body aches and intense headache. It is a very common disease that occurs in epidemic form from time to time. Delhi and parts of North India experienced an epidemic in 1996. The disease is quite severe in young children as compared to adults.

It is a disease which occurs throughout the world except in Europe and affects a large number of people. For example, it is estimated that every year, 2 crore cases of Dengue fever occur in the world. Death rate varies from 5 per 100 cases to 30 per 100 cases.

Cause ?

It is caused by a virus (Dengue Virus) which has got four different types (Type 1,2,3,4). Common name of the disease is 'break-bone fever' (*Haddi Tod Bukhar*) because of severe body and joint pains produced.

Spread

Just like Malaria, Dengue fever is also spread by bites of mosquitoes. In this case, the mosquitoes are "Aedes" mosquitoes which are very tough and bold mosquitoes and bite even during day time.

This disease occurs more frequently in the rainy season and immediately afterwards (July to October) in India.

The Dengue virus is present in the blood of the patient suffering from Dengue fever. Whenever an Aedes mosquito bites a patient of Dengue fever, it sucks blood and along with it, the Dengue virus into its body. The virus undergoes further development in the body of the mosquito for a few days. When the virus containing mosquito bites a normal human being, the virus is injected into the person's body and he/she becomes infected and can develop symptoms of Dengue fever.

Incubation Period : Commonly 5-6 days. However it can vary from 3-10 days.

Symptoms of the disease

Symptoms depend upon the type of Dengue fever. There are three types of Dengue fever-

1. Classical (Simple) Dengue Fever

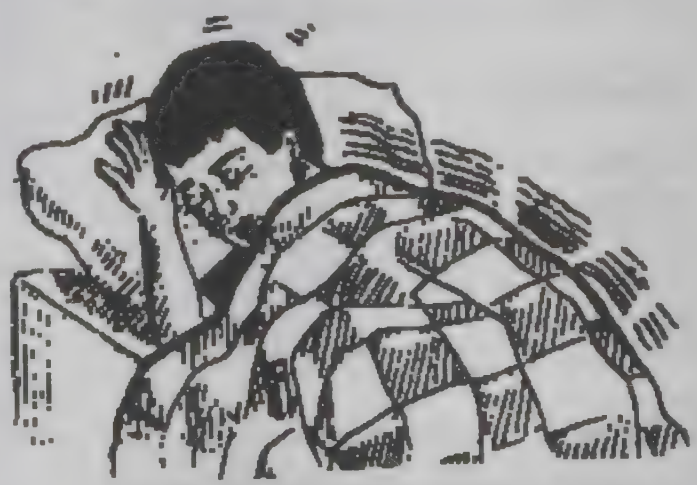
2. Dengue Haemorrhagic Fever (DHF)
3. Dengue Shock Syndrome (DSS)

The classical (Simple) Dengue fever is a self-limiting disease and does not kill. However, the other types (i.e. DHF & DSS) can prove fatal if prompt treatment is not started.

It is important to recognise whether Dengue Fever is Simple or DHF or DSS. The following symptoms will help in diagnosis –

Classical (Simple) Dengue Fever:

- Sudden onset of high fever with feeling of chills *("Thandi Lagna").*
- Severe headache, Pains in muscles and joints.
- Pain behind the eyeballs especially on pressing the eyes or on moving the eyeballs.
- Extreme weakness, loss of appetite, feeling of nausea.
- Change in taste sensations in mouth.
- Pain in abdomen by itself or on touching.
- Mild pain in throat.
- Patient feels generally depressed and very sick.
- Rash on the skin : Pinkish red rash appears on the skin in the form of diffuse flushing, mottling or pinhead eruptions on the face, neck and chest. Later on, the rash may become more prominent.



The entire duration of Classical Dengue fever lasts for about 5-7 days and the patient recovers.

Dengue Haemorrhagic Fever – (DHF)

It should be suspected **if with above mentioned symptoms** of Classical (Simple) Dengue Fever, **one or more of the following symptoms appear :**

- Bleeding (haemorrhagic) manifestations : Bleeding from nose, gums, blood in the stools or in vomiting, bleeding spots on the skin which are seen as dark bluish-black, small or large patches. If a health worker carries out a Tourniquet Test, it is positive. Certain laboratory investigations carried out on a blood sample also confirm DHF.

Dengue Shock Syndrome (DSS)

All symptoms as mentioned above in DHF may be present plus the patient also develops a condition called 'shock'. Symptoms of shock in a Dengue Fever case are –

- The person is very restless and the skin feels cold and clammy despite high fever.
- The person may start losing consciousness.
- If you examine the pulse rate of the patient, it is weak and rapid. Similarly, blood pressure will be low.

Treatment

If it is classical (simple) Dengue Fever, the patient can be managed at home. As it is a self-limiting disease, the treatment is purely supportive and symptomatic –

e.g. –

- Keep the fever low by giving paracetamol tablet or syrup as per health worker's advise **(See Annexure 2)**
- Avoid giving Aspirin tablets to patient
- If fever is more than 102°F, carry out hydrotherapy to bring down the temperature. **(*See Annexure 3*).**
- Give plenty of fluids to the patient.
- Continue normal feeding. In fever, the body, infact, requires more food.
- Allow the patient to rest.

If any of the symptoms indicative of DHF or DSS develop, rush the patient to the nearest hospital at the earliest where appropriate investigations will be carried out and necessary treatment instituted, e.g., transfusion of fluids or platelets (a kind of blood cells which become low in DHF and DSS). **Please remember that every patient does not require blood platelet transfusion.**

Please remember

Even DHF and DSS can be managed successfully if a correct diagnosis is made and the treatment is started early. If treatment is delayed, death rate in DHF and DSS are over 30%.

Prevention

Prevention of Dengue Fever is easy, cheap and better. What is required are some simple measures for –

- Preventing breeding of Aedes mosquitoes
- Protection from Aedes mosquitoes' bites.

For protection against mosquitoes

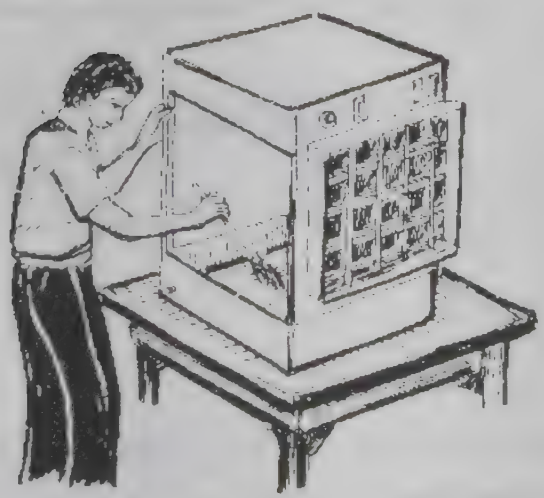
1. Mosquito breed only in water sources such as stagnant water in drains and ditches, room air coolers, broken bottles, old discarded tyres, containers and similar sources.

- Don't allow water to remain stagnant in and around your

house. Fill the ditches. Clean the blocked drains. Empty the room air coolers and flower vases completely atleast once in seven days and then refill them. Dispose off old containers, tins and tyres etc. properly.

- Keep the water tanks and water containers tightly covered so that the mosquitoes can not enter them and start breeding.

- Wherever it is not possible to completely drain the water off from room cooler, water tanks etc., it is advised to put about two tablespoons (30 ml.) of petrol or kerosene oil into them for each 100 litres of water. This will prevent mosquito breeding. Repeat it every week.



- You can also put some types of small fish (Gambusia, Lebister) which eat mosquito larvae into these water collections. These fish can be obtained from the local administrative bodies (e.g., Block Development Officer's office in the area).

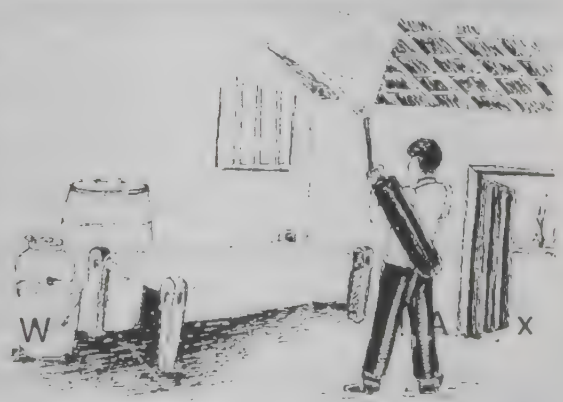
- Wherever possible, practicable and affordable, prevent entry of mosquitoes into the house by keeping wire mesh on windows and doors.

- Use mosquito repellent sprays, creams, coils, mats or liquids to drive away/ kill the mosquitoes. Use of *googal* smoke is a good indigenous method for getting rid of mosquitoes.

- Wear clothes which cover the body as much as possible. This is more relevant in case of children. Nickers and T-shirts are better avoided during the season of Malaria and Dengue fever, i.e., from July to October.

- Don't turn away spray workers whenever they come to spray your house. It is in your own interest to get the house sprayed.

- Use insecticidal sprays in all areas within the house atleast once a week. Don't forget to spray



behind the photo-frames, curtains, calendars; corners of house, stores.

- Keep the surroundings of your

house clean. Don't litter garbage. Don't allow wild herbs etc. to grow around your house (atleast in a radius of about 100 metres around your house). They act as hiding and resting places for mosquitoes.

- Do inform and take help from your local health centre, panchayat or municipality in case you notice abnormal density of mosquitoes or if too many cases of fever are occurring in your area.

It is good to remember that Aedes mosquitoes bite even during daytime and hence you should take precautions against their bite during day time also.

- If fencing of the doors and windows is not possible due to any reason, spray the entire house daily with pyrethrum solution.

- Dengue fever occurs most frequently in India in the months of July to October because this season provides very suitable conditions for breeding of mosquitoes. Hence all these preventive steps must be taken during the season.

- Lastly, it is advisable to always keep the patient of Dengue fever under a mosquito net in the first 5-6 days of the illness so that mosquitoes don't have an access to him/her. This will help in reduction in spread of Dengue fever to other persons in the Community.

If you ever notice that many persons have suffered from an illness which may appear to be Dengue Fever, please inform this to the local health authorities at the earliest. This will help in preventing the disease acquiring epidemic proportions.

Section Two

Diseases that spread through contaminated water, food, flies & poor personal hygiene

Chapter 3
Typhoid Fever
(including Para-Typhoid Fever)

Chapter 4
Cholera
Gastro-Enteritis
Diarrhoea & Dysentary
Food Poisoning

Chapter 5
Viral Hepatitis (Jaundice)

Chapter 6
How to prevent diseases that spread through water, food & poor personal hygiene?

Chapter 3

Typhoid Fever
(and Para-typhoid Fever)

What is it ?

It is a disease characterised by gradually increasing fever which can last for 3 to 4 weeks. Typhoid Fever is a disease that occurs only in Man and no other animal.

It occurs in all those parts of the world where water supply and sanitation facilities are sub-standard. That is why, it has been wiped out from all developed countries like USA whereas it still continues to affect a large number of people in countries like India. In many cases, it results in death.

In India, it is estimated that this disease causes about 3.5 to 4.0 lakh cases and hundreds of deaths every year. In many instances, the disease occurs in epidemic form. Typhoid Fever affects mainly the children and young adults.

What causes it ?

Typhoid fever is caused by a bacterium called *Salmonella typhi*. A close cousin of *Salmonella typhi* is another bacterium called *Salmonella paratyphi* which causes another disease called 'Para-typhoid Fever'. Typhoid Fever and Para-typhoid fevers resemble each other in many ways and together, they are called Enteric Fever.

How does it spread ?

The Typhoid bacteria are excreted in the stool and urine of a case or a carrier of Typhoid bacteria. (A carrier is a person who does not become or looks sick but has the Typhoid bacteria in his/her body. A person can also become a carrier after he/she suffers from an attack of Typhoid fever).

After coming out of the patient/ carrier's body, they contaminate the soil. These bacteria can reach other healthy persons through contaminated food, water, flies and poor personal hygiene :

- Food items such as milk, ice-creams, ice and milk products which are contaminated.

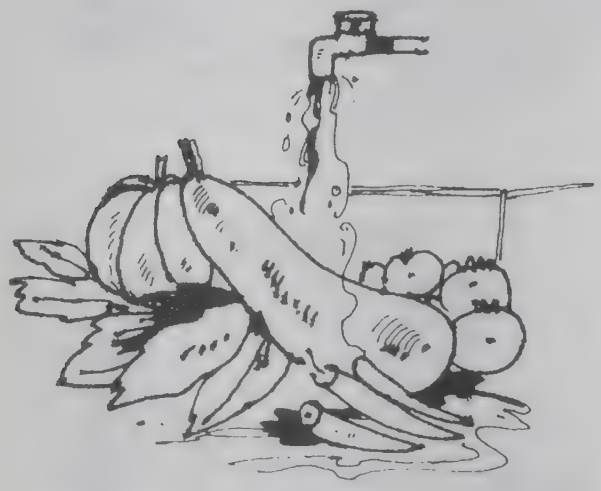
- Contaminated water

- Flies which can bring the Typhoid bacteria from stool and contaminate the food – especially the fruits and sweets which are sold cut and open in the market .

- Defaecation in the open (e.g., in fields) helps a lot in spreading this disease.

- Food handlers, who don't wash their hands after going to the toilet (urination and defaecation) and before cooking/ serving food, also help in spreading this disease by contaminating food and water they cook/ serve.

- Food items such as raw vegetables, fruits and salads if not washed thoroughly also spread this disease.



The disease occurs through out the year in India but most number of cases occur in the months of July to September because chances of water and food getting contaminated are more in these months (due to rains).

Incubation Period

Usually 10-14 days, i.e., it takes this much time for the Typhoid bacteria to produce symptoms of this disease after entering the body (through mouth → to the intestines where they lodge themselves and multiply).

Symptoms & Diagnosis

Typhoid fever should be suspected in some one who has –

- Fever of more than one week duration. It starts suddenly and keeps on increasing every day. Within a few days, the fever can reach 104° - 105°F. This fever does not completely come down to normal even with anti-fever drugs such as paracetamol. Fever continues for 2-3 weeks unless specific medicines are given for treating Typhoid fever.

- With fever, the person can also have fatigue, nausea, loss of appetite, weakness and looks sick. Occasionally, vomiting also occurs. Constipation can also set in.

- Very small, fine, pearl like granules of greyish white colour can also appear on the chest and back of some patients within first 7 days. These are difficult to see in those who don't have fair complexion. Because of their resemblance to small pearls (*Moti*), Typhoid fever is also called "*Moti Jheera*".

If untreated, these symptoms become more troublesome and the patient starts looking very weak within 8-10 days.

Certain **complications of Typhoid fever** can also occur. These complications produce additional symptoms depending upon the organ affected by them, e.g., sudden pain in abdomen and pain on touching (indicating perforation (hole) in the intestines); inability to pass stool or wind (indicating obstruction in intestines) etc.

Diagnosis

Doctors and health workers suspect Typhoid fever if symptoms described above are present in a patient.

Diagnosis can be confirmed by certain tests done in a laboratory on blood and stool (e.g., Widal test, blood culture, stool culture).

Treatment

Typhoid fever is a treatable condition for which good, effective medicines are available. It is best advised to take treatment from a good, qualified doctor or health worker and not start medicines (like chloromycetin or ciprobid) on your own.

Some people resort to unscientific and harmful practices of going to *Tantriks* or *Jhad-Phoonkh walas*. Just avoid them.

At home, you can give medicines like paracetmol for reducing fever (***see Annexure 2***). Carry out hydrotherapy (***see Annexure 3***) if fever is more than 102°F.

Give lots of fluids to the patient. **Don't stop food**. Give semi-solid/ soft food, which does not have too much chillies/ spices.

Food items such as chapatis, meat, chicken, deep fried foods are better avoided during this illness as they are slightly difficult to digest by the intestines which are already weak due to Typhoid fever.

With treatment, Typhoid Fever can be treated successfully. Take complete course of the prescribed drugs otherwise Typhoid Fever can re-start.

The patient should thoroughly wash the hands every time after urination or defaecation. Properly dispose off stools and urine of the patient. Flies should not have access to patient's stool. That is why, if some one has to go to open for defaecation, always cover the passsed stool with a heap of soil.

All these are true for Para-typhoid fever also.

- **Prevention :** Typhoid fever can be easily prevented. Just ensure that certain safety measures are taken. **(See Chapter 6).**

Prevention of Typhoid fever by Immunization (Vaccines)

You can also protect yourself against Typhoid fever by taking doses of the Anti-Typhoid Vaccine.

1. Injection of Anti-Typhoid Vaccine –

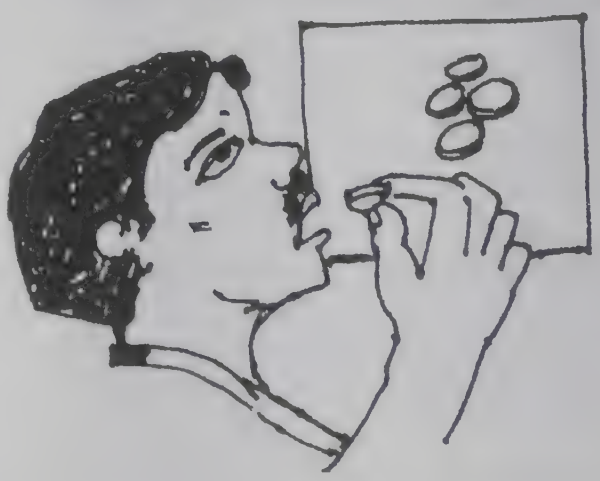
To be given to all persons above the age of one year. Two doses are required. After taking first dose, the second dose is to be repeated after 4-6 weeks.

Repeat one dose after every three years.

Do remember that sometimes, this injection can give rise to severe reactions like fever, swelling and pain at the injection site. Don't worry. They will be alright in 2-3 days with some common medicine like paracetamol.

Also, be informed that this injectable vaccine is not 100% effective . It means that some people can still get Typhoid fever despite a full course of the vaccine. One type of injectable anti-Typhoid vaccine called as TAB Vaccine also protects against Para-typhoid fever.

2. Oral Anti-Typhoid Vaccine



These days, Anti-Typhoid vaccine is also available in capsule from that can be taken by mouth. It can only be given to persons above the age of six years. For a full course, three capsules are to be taken on day 1, 3 and 5. Capsule must be taken empty stomach and with cold water or milk. A full course is to be taken after every three years.

It is a better vaccine but quite costly (April 1999 price : Rs. 159 for a course of three capsules – available by the trade name of "**Typhoral**" in the market). Those who can afford it, should take it.

With these measures, you can prevent typhoid fever.

Chapter 4

Cholera, Diarrhoea & Dysentery, Gastro-Enteritis & Food Poisoning

What are these diseases ?

Cholera, Diarrhoea, Dysentery and Gastro-Enteritis are common communicable diseases of gastro-intestinal system which have many things in common as they are all spread by intake of contaminated water and food.

Food poisoning is a disease, which results from eating food which is either stale or contaminated with poisonous germs or their toxins.

As the causes of spread of all these diseases are very similar in nature, these are being discussed together.

What causes them ?

Causes of these diseases are listed below :

Cholera (*Haiza*)
It is caused by bacteria called as Vibrio *cholerae*

Diarrhoea (& Dysentery)
It is disease which is caused by many types of viruses, bacteria and some other types of germs like amoeba. Patient is said to be having diarrhoea if he/she passes 3 or more loose (liquidy) stools in one day.

Gastro-Enteritis (GE)
Whenever a patient has diarrhoea (loose motions) with vomiting, it is called Gastro-Enteritis. It is a symptom of many diseases like Cholera and Food Poisoning. Thus, bacteria and viruses can cause it.

Food Poisoning
It can be due to certain bacteria or viruses or their toxins which can be present in food if the food is stale or contaminated. Certain poisonous chemicals added intentionally or accidentally in the food can also result in food poisoning.

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How do they spread ?

Cholera, Gastro-Enteritis and Diarrhoea/ Dysentary can spread from one person to another through intake of contaminated food and/ or water. The methods of spread through contaminated food and water are exactly the same as in case of Typhoid fever:

- Contaminated water
- Food items such as milk, ice creams, ice and milk products which are contaminated.
- Flies which can bring the germs of Cholera, GE and Diarrhoea from stool and contaminate the food – especially the fruits and sweets which are sold cut and open in the market.
- Defaecation in the open (e.g., in fields) helps a lot in spreading these diseases.
- Food handlers, who don't wash their hands after going to the toilet (urination and defaecation) and before cooking/ serving food, also help in spreading these diseases by contaminating food and water they cook/ serve.
- Food items such as raw vegetables, fruits and salads if not washed thoroughly also spread these diseases.
- Though Cholera and Gastro-Enteritis can occur as isolated cases, generally speaking the may affect a large number o persons in an area – especially i water supply has beer contaminated due to any reason
- Food poisoning does not spread from one person to another However, generally speaking, a large number of persons migh suffer from food poisoning due to eating food from a common source as in a party or eating *prasad*. Food poisoning occurs maximally in hot summer months because food gets deteriorated very fast in summer.

Incubation Period

Usually the incubation periods are as follows

- Cholera = 1-4 days
- Gastro-Enteritis = Few hours to 4 days
- Diarrhoea = 1-4 days
- Food Poisoning = Few hours to 2 days

Symptoms

Cholera

Patient suddenly starts passing frequent, large amounts of loose watery stools which resemble rice-water (*maand*). The stools are passed without any effort.

With it, the patient also has vomiting

which is forceful and projectile. Very soon, dehydration (loss of water and salts from the body) sets in and the patient starts feeling very weak and can't even get up from the bed.

One important feature of Cholera is that the patient DOES NOT HAVE PAIN IN ABDOMEN. That is why cholera is often said to be a disease with painless, effortless loose motions and vomiting.

Gastro-Enteritis (GE)

The patient has loose motions, pain abdomen and vomiting accompanied by severe weakness.

If loose motions are frequent, dehydration sets in. Dehydration progresses rapidly in young babies and children. That is why, GE is more dangerous in them.

Diarrhoea/ Dysentery

Patient starts passing loose, liquidy stools. The number of stools can vary from 5-15 per day or even more. Patient can also have pain (cramps) in abdomen. Dehydration sets in which is more dangerous in younger children and babies.

In dysentery, the loose stools contain blood or mucus or both. The patient feels very weak.

Food Poisoning

It can result in –

- Diarrhoea
  (as described above)
- Vomiting
- Gastro-Enteritis
  (as described above)

The patient also has pain (cramps) in abdomen. Fever may also be present. Dehydration sets in if diarrhoea/ vomiting continue.

Dehydration

It means loss of fluids and vital salts from the body through loose motions or vomiting. Due to loss of these life-sustaining elements, body functions become deranged and if not treated in time, it can result in death. It is worth remembering that **most of the deaths due to Cholera, GE, Diarrhoea and Food Poisoning are due to dehydration only.**

How to recognise dehydration ?

Symptoms will depend on the severity of dehydration, i.e., how much fluid has been lost?

Mild dehydration : Symptoms –

- Patient is alert and conscious but feels very thirsty and restless; asks for water.
- Mouth and lips appear somewhat dry. Tongue is moist.
- Patient wants to drink more and more water and is also passing urine from time to time.

Severe dehydration

- The patient is drowsy, limp, cold, sweaty and may be comatosed. In that condition, he/she does not even ask for water.
- Tongue, eye, mouth cavity and lips are very dry.
- Anterior fontanelle (the depression at the top of a young baby's head) in children is very depressed.

- The person's urine output is little or none.

- Skin elasticity is very much reduced. If you lift a fold of skin on the abdomen of the patient and release it, the skin takes time to go back to normal state. (Normally, it goes back immediately).

Moderate Dehydration

Symptoms are worse than mild dehydration but less severe than severe dehydration.

What to do if Cholera, GE, Diarrhoea or Food Poisoning occurs ?

- Don't panic and remain cool.

- If patient's consciousness is intact, start giving oral fluids to him/her without even waiting for a medical consultation.

- Give whatever is available at home, e.g., water, *lassi*, buttermilk, lemon *shikanji*, rice water, coconut water, weak tea or if available, Oral Rehydration Salt (ORS) solution. Dissolve one packet of ORS in one litre of clean, drinking water and start giving it to the patient. Give as much as the patient can drink comfortably. If the patient can drink comfortably, give a minimum of one glassful (200 ml) of ORS for each stool passed or one vomitus. Keep giving ORS solution even if the patient is vomiting or continues to have loose motions. Keep giving it in frequent, small sips.

Remember, these measures i started in time, will replace the flui and salts lost from the body an thus prevent or correct dehydration Let us remind you once again tha **dehydration is the actual kille in patients of Cholera, GE Diarrhoea or Food Poisoning.**

After that as soon as possible seek medical help.

- As a rule don't start any medicin on your own to the patient. Seek doctor/ health worker's advice Don't give anti-spasmodics or ant diarrhoeal drugs to the patien However, if such an event occur at a place, where there is n possibility of a medical help, yo can administer drugs **if cholera i suspected** and you have the dru in your medical kit. You can giv (to an adult) capsules o Doxycycline (100 mg) in the dos of three capsules as **one single immediate dose**. Please don give capsules of Doxycycline t pregnant woman. In pregnan women or if capsules o Doxycycline are not available, yo

can give tablet Furoxone (100 mg) – one tablet after every six hours. Give it only after the patient has eaten some food.

Doses for children will be proportionately less.

If the patient has become drowsy or is unconscious, don't waste any time and rush the patient immediately to a nearby clinic, dispensary or hospital because such patients can only be given fluids through their veins. **Don't give any fluid by mouth to such patients.**

By following these instructions as mentioned above, you would be able to overcome an attack of Cholera, GE, Diarrhoea or Food poisoning.

Prevention

- Keep a watch about occurrence of a case of Cholera, GE or Food Poisoning. If even a single case is noticed in your family/ locality, inform your local health authorities/ municipality.
- On your own, you can take certain measures to prevent occurrence of Cholera, GE or Food poisoning. As discussed in the chapter on Typhoid fever, you need to observe certain precautions. **Please see Chapter 6.**

Prevention by Vaccination

There is no vaccine available against diarrhoea, GE or Food Poisoning.

However, a vaccine is available against Cholera. The bad news is that this vaccine is only about 50% effective. Those who wish to take it, should take two doses of the injection of anti-cholera vaccine after a gap of 4-6 weeks between these two doses. Protection lasts for about six months only, so you have to repeat one dose after every six months.

If an epidemic of cholera is going on in an area, vaccination with cholera vaccine has hardly any role in prevention.

Children below the age of one year, in any case, should not be given this vaccine.

- **Handling a Cholera patient – Important Tips :**
- Persons handling a patient of Cholera or GE must wash their hands very frequently and always before eating or drinking. Use cresol (10% solution). Alternatively, soap-water should be used.
- Dispose off stools and vomitus of a Cholera or GE patient carefully in a sanitary latrine.
- If sanitary latrine is not available, collect stools or vomitus in an impervious (leak proof) container. Use 5% bleaching powder (50 gms for one litre excreta) or 10% formalin solution (100 ml for one litre excreta) to disinfect the stools and vomitus. Mix them with stool or vomitus and allow it stand for 1-2 hours. After disinfection, the excretal matter may be emptied into a water closet or buried into the ground.
- Latrines, bedpans, clothes and bed sheets of the patient should also be disinfected by bleaching powder or formalin during the illness and after it is over.

Chapter 5

Viral Hepatitis
(Jaundice, *"Peeliya"*)

What is it ?

Viral Hepatitis is the name given to a group of communicable diseases which infect the liver ("Ziger") in the body and are caused by viruses. Viral Hepatitis is of the the following types :

Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis D (Delta Hepatitis) and Hepatitis E

Of these, Hepatitis A and Hepatitis E are the ones which have sudden epidemic potentials. Out of Hepatitis B,C and D, Hepatitis B is the most dangerous variety. However, we will restrict our discussion in this chapter to Hepatitis A and Hepatitis E as other varieties mainly spread through blood.

Hepatitis A | **Hepatitis E**

Cause

Hepatitis A is caused by *Hepatitis A Virus*

Hepatitis E is caused by *Hepatitis E Virus*

Spread

Mainly through contaminated water and food (just like Typhoid fever, Cholera and GE).

At a given point of time, a large number of people may be affected in an area if spread is through drinking water contaminated with sewage. In such a situation, a large number of people are affected with jaundice due to Hepatitis A & E.

These are diseases of poor environmental and personal hygiene. Spread of these diseases are discussed in detail here.

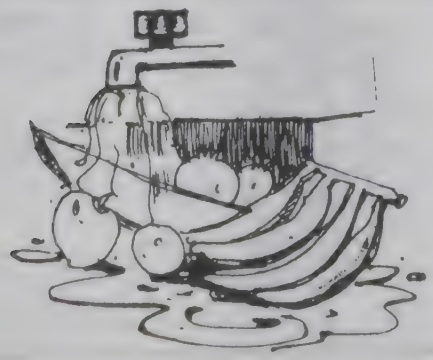
Drinking water contaminated with faeces is the main culprit. These diseases commonly spread by these methods :

- Contaminated water
- Food items such as milk, ice-creams, ice and milk products which are contaminated.

- Flies which can bring the Hepatitis Virus from stool and contaminate the food – especially the fruits and sweets which are sold cut and open in the market .

- Defaecation in the open (e.g., in fields) helps a lot in spreading this disease.

- Food items such as raw vegetables, fruits and salads if not washed thoroughly also spread this disease.



- Food handlers, who don't wash their hands after going to the toilet (urination and defaecation) and before cooking/ serving food, also help in spreading this disease by contaminating food and water they cook/ serve.

The disease occurs through out the year in India but most number of cases occur in the months of July to September because chances of water and food getting contaminated are more in these months (due to rains).

Incubation Period

Hepatitis A : 15-50 days

Hepatitis E : 2 weeks – 9 weeks.

Symptoms

Both these diseases have similar symptoms. After the incubation period, symptoms appear rapidly. Please note that every one exposed to water or food contaminated with Hepatitis A Virus or Hepatitis E virus does not develop the disease because of body's resistance to these viruses.

Symptoms mainly include :

- Onset of fever with feeling of cold
- Fatigue, easy tiredness, generalised weakness.
- Headaches, body aches and pains
- These are followed in a few days by
  - Loss of appetite.
  - Nausea, especially distaste for cigarettes/smoking.
  - Vomiting.
  - Urine becomes dark yellow coloured.
  - Jaundice appears. Jaundice is first seen as yellowish colouration of white portion of the eyes.

Symptoms are more severe in children. These symptoms can last for 6-8 weeks (usually 4-5 weeks). After that, in almost all patients, complete recovery takes place.

Hepatitis E can be slightly more dangerous if it occurs in pregnant women. It can cause even death.

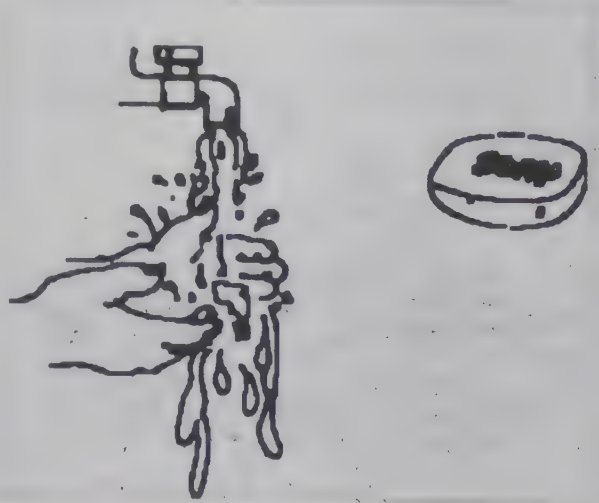
Treatment

There is no specific treatment for these diseases. These are self-limiting diseases in almost all patients. Treatment consists of the following :

- Take bed rest (absolute in first two weeks).
- Take paracetamol for fever, headache and body aches. (See Annexure 2)
- Drink plenty of oral fluids.
- **Diet :** Contrary to popular belief, normal diet must be continued for the patient. At the most, deep fried and creamy food items can be avoided in the patient's diet as they are heavy on the digestive system.
- "*Jhad-Phoonkh*" does not help. Avoid it.
- Similarly, it is a common belief that giving sugarcane juice to the patient helps in faster recovery. It is not correct. Infact, it can be even dangerous as very often, the sugarcane juice is taken from vendors who sell it in unhygienic way.
- Give only boiled water for drinking to the patient.
- Dispose off the stools and vomitus of the patient carefully.

These tips help –

- Persons handling a patient must wash their hands very frequently and always before eating or drinking. Use cresol (10% solution). Alternatively, soap-water should be used.



- Dispose off stools vomitus of a Hepatitis patient carefully in a sanitary latrine.
- If sanitary latrine is not available, collect stools or vomitus in an impervious (leakproof) container. Use 5% bleaching powder (50 gms for one litre excreta or 10% formalin solution (100 ml for one litre excreta to disinfect the stools and vomitus and allow it stand for 1-2 hours.
- After disinfection, the excretal matter may be emptied into a water closet or buried into ground.
- Latrines, bedpans, clothes and bed sheets of the patient should also be disinfected by bleaching powder or formalin during the illness and after it is over.

Prevention by vaccine and immunoglobulins

Till now, there is no effective vaccine available to protect against Hepatitis A and Hepatitis E diseases. However, there are hopes that very soon, these vaccines may be available. [Incidentally, a vaccine is available against Hepatitis B. Three doses of this vaccine are to be taken on Day 1, Day 30 (one month after the first dose) and at Day 180 (i.e., six months after the first dose). Repeat a booster dose after every 3-4 years].

Administration of Immunoglubulins for protection against Hepatitis A–

It is recommended only for individual protection for –

(a) Susceptible persons travelling to those areas where Hepatitis occurs very commonly or an epidemic of Hepatitis (Jaundice) is going on.

(b) Close personal contact with a patient of Hepatitis.

(c) Control of out-breaks of Hepatitis in institutions (Hostels, schools etc).

Dose :

- One single dose calculated on the basis of 0.02 ml ***or*** 3.2 mg per Kg. of body weight : through injection.
- Protection lasts for about four months, so repeat the dose after four months (if needed).
- Take it about one week before likely exposure or within 1-2 weeks of exposure that has already taken place. After onset of symptoms, it is of no use.
- Lastly, if you notice even one case of jaundice occuring in your family or locality –

- **Inform the local health authorities**
- **Strictly follow all precautions as discussed in Chapter 6.**
- **Drink only boiled water – especially if an epidemic is going on.**
- **Normal chlorination of drinking water does not prevent Viral Hepatitis. Use other methods for purification of water.**

Chapter 6

How to Prevent Diseases that Spread by Contaminated Water, Food & Poor Personal Hygiene?

e.g. - Typhoid, Cholera, Gastro-Enteritis, Diarrheoa/ Dysentery, Food Poisoning & Viral Hepatitis.

- Avoid contamination of food and water at all costs. Don't defaecate or urinate in open –especially near a source of drinking water.

- Always wash hands after urinating or defaecating and before cooking, serving or eating food. Use soap water. Never use mud with water. If soap is not available, ash (*raakh*) can be used.

- There are persons who are carriers for Typhoid bacilli. You can not make out by looking at them. If the carrier is a food handler, the risk of getting Typhoid bacteria from them is even greater. That is why, all food handlers must wash their hands before cooking or serving food.

- Don't consume food items which are sold cut or in open. Don't eat such fruit *chaats*, *chaats, gol gappa (Pani-puri)*, sweets. Similarly don't drink sugarcane juice sold so commonly in summer months. Avoid drinking fruit juices from shops which don't wash the fruits, the juice machine and serving glasses properly with clean water.

- Boil milk atleast for 10-15 minutes.

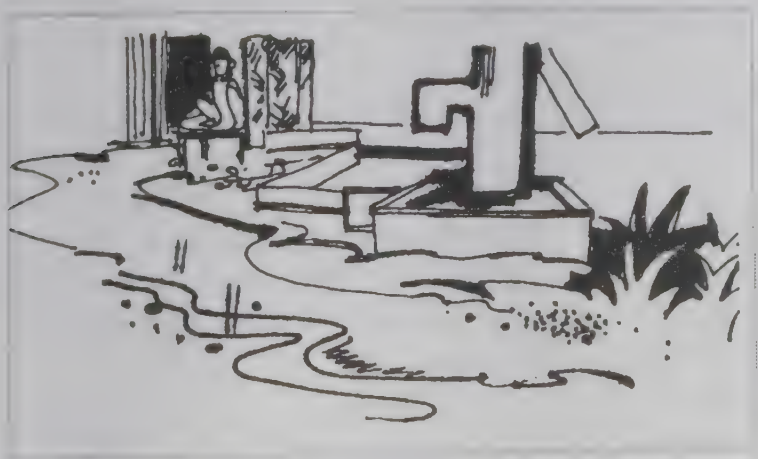
- Don't put commercial ice directly into your drinks or food as it is often found to be contaminated with disease causing germs. By the same logic, *kulfis*, ice creams, ice-lollys, *chuskis*, *Goli wali* bottle made by small-scale industries or vendors are to be avoided because they are often made in unhygienic conditions.

Remember that Typhoid bacteria survive very well in ice and ice creams.

- **Always drink safe water.**

Water taken from shallow hand-pumps or water sources located near toilets, urinals or garbage dumps are likely to be contaminated. The disease

causing germs percolate through soil and ultimately get into the underground water table of such water sources.



Water sold through water trolleys is often contaminated. By drinking such water, you are actually paying money to get diseases like Typhoid, Diarrhoea, Cholera, Jaundice and Poliomyelitis etc. !

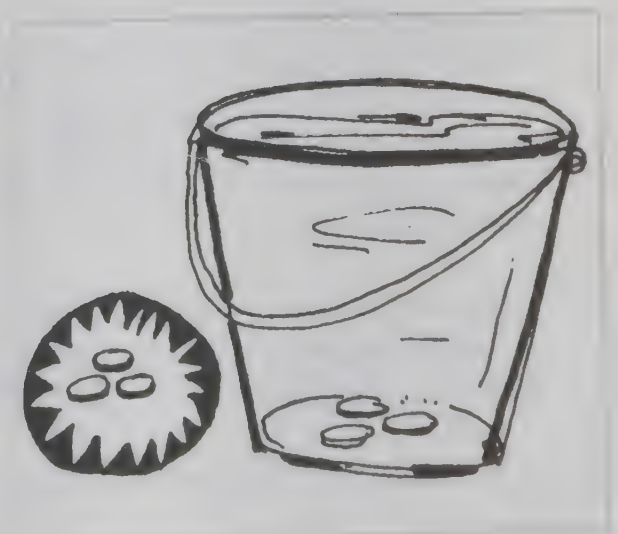
By the same logic, it is a good advice to avoid drinking water at marriages and other parties **where water is being served loose in glasses**. It is our experience that water served in such gatherings in this manner is often contaminated by the waiters, dirty glasses and the commercial ice used to cool water.

Always drink water from the sources supplied by municipalities or Jal Boards.

If you are not sure about the quality of water you are drinking, it is best advised that you purify the water before you drink it. These methods can be used to purify water at domestic level –

1. **Boil the water.** Keep boiling it for about 15-20 minutes after it reaches the boiling point. Keep it covered after boiling. Cool it and use for drinking and for kitchen work. Don't put glasses/ mugs/ hands directly into the stored water. Use a ladle (mug with a handle).

2. **Chlorine tablets** can also be used. Use one tablet of chlorine (500 mg strength) for purifying 20 liters of water.



Crush the chlorine tablet and put into the water. Stir it well with a long spoon. Leave it for about 30-45 minutes so that chlorine can act on germs present in water. Use it after that.

3. **Filters and Electronic water purifiers :** Recommended only for those who can afford them. However, as compared to boiling, these are not as reliable methods. Not all popularly available filters remove all disease causing bacteria and viruses from water. Not only these filters etc. are very costly, they also require regular servicing for effective purification.

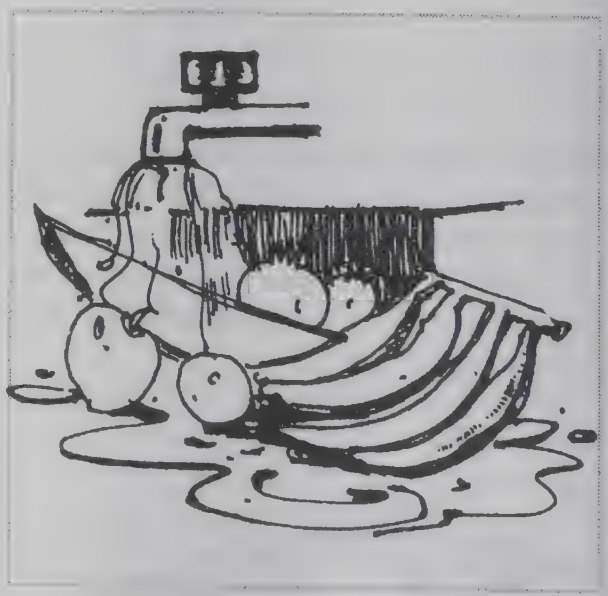
It may sound surprising but it is true that many a time, water used to make some popular cold drinks (through fountains) is unpurified even if there is a water purification machine installed in the vending unit. Reason? The water purification machine is either not 'on' or is not working. Check it yourself next time you buy a popular cold drink from a fountain (vending machine) !

- Water should be stored in clean containers and kept covered. Never put the glass or hand directly into the water container. Always use a ladle (mug with a handle) to fetch water from a container.

- Children need to be sent safe drinking water with them while going to the school.

- Use sanitary latrines. They prevent contamination of water and food.

- Always wash fruits and vegetables properly in clean RUNNING water. This is all the more important for fruits and vegetables eaten raw. Cabbages, cucumbers, tomatoes, water-melon (*tarbooj*), musk-melon (*kharbooja*), *kakri*, onions, radish, apples and other such items must be washed thoroughly before eating.



- Keep your surroundings clean. Flies breed in the garbage. Don't allow them to breed by regularly disposing off the garbage in a hygienic manner.

- In summer season, it is best to store cooked food and eatables in a refrigerator if you wish to use it later. If that is not possible, always prepare fresh food before eating. Consuming stale food in summer months is an invitation to food poisoning.

Section Three

Fevers with Body Rash

Chapter 7
Chicken Pox

Chapter 8
Measles

Chapter 7

Chicken Pox

What is it ?

It is a highly communicable viral disease which occurs very commonly in children and young adults. It starts very suddenly and produces fever with skin eruptions along with other symptoms. Many a time, it is confused with Small Pox which has been completely eradicated from this world in 1980 and hence, no longer occurs.

What causes it ?

It is caused by the Varicella Zoster (VZ) virus. This disease occurs sporadically as well as in epidemic forms.

Who are affected ?

Primarily, it affects children below the age of 10 years. Occasionally, it affects adults also. In adults, the disease is more serious. If it occurs in pregnant women, it can be risky for the unborn baby.

When does it occur?

Very often, the disease occurs in first six months of the year in India. Most of the cases occur in February, March and April.

How does it spread ?

The source of infection is a case of Chicken Pox. VZ Virus is present in the secretions from mouth (e.g., saliva) and in the lesions (eruptions) of the skin of the patient.

The virus spreads to other normal persons through direct contact (face to face) or through the air droplets. The virus enters the body of its next victim through respiratory route.

The crusts (scabs, *papdi*) formed on the eruptions on skin don't contain the virus and hence not infective to others.

The unfortunate part in Chicken Pox is that the virus can be transmitted from a patient to other healthy persons **even before** the patient develops skin rash/ eruptions (i.e., before chicken pox can be diagnosed).

A patient remains infective to others for about six days after the skin eruptions appear. Once the crust starts forming on skin eruptions, the virus is not transmitted to others.

As this disease is highly communicable, once a case occurs in

a family, more than 90% of all those persons are likely to get it (who have not had it before and have come in contact with the case).

Symptoms

Symptoms can vary from mild to severe. In some patients, only a few skin eruptions occur with fever. However, when in full force, the patient has these symptoms :

1. Sudden onset of fever which may not become too high.

2. Pain in the back, shivering and body aches.

This stage lasts for about 24 hours.

After this –

3. With fever, skin rash (eruptions) start. The rash has features which are listed below. (*For the benefit of readers, differences between chicken pox rash and Small Pox rash are also given*) –

- The rash first appears on the chest and abdomen and then comes on the face, arms and legs. It is *more* on chest, abdomen and *less* on face, arms and legs. *(In smallpox : exactly the opposite*).

- The rash is hardly present on palms and soles but can be present in the armpit. (*In smallpox : exactly the opposite*).

- The rash is mostly present on the front surfaces of forearms and back surfaces of the legs and thighs. (*In smallpox : exactly the opposite*).

- The rash progresses fast and hence changes its appearance quite rapidly. The eruptions become slightly bigger in size and soon turn into lesions filled with a clear fluid and having reddish borders (called as "vesicles")

- Very soon, crust starts forming on these vesicles (within 4-6 days after the rash appears). The rash is superficially located on the skin.

Fresh rash starts in crops on the first two days, so one can see different forms of eruptions on the skin in a case of chickenpox. That means the patient may be having granules,

vesicles and crusting lesions – all at the same time in one area.

(*In small pox : Rash appears only once; so the patient will have only similar looking lesions on the skin at a time. The eruption also progresses very slowly and crusting starts only after 10-14 days of appearance of the rash*).

4. The eruptions are itchy and the person feels uncomfortable.

5. The person may also have mild cough and slight loss of appetite.

Generally, the disease is a self-limiting disease and the person recovers in about 10 days time.

However, certain complications can occur in some cases (**more chances in adults**) – **e.g.,**

- Pneumonia (leading to cough, sputum formation & breathlessness).
- Bleeding from the intestines and mouths.
- Encephalitis ("Brain Fever") – manifesting as loss of conciousness, convulsions.
- Reye's Syndrome : A disease which results in affection of brain and other body organs. This can be fatal. Initial symptoms are just like encephalitis (Brain fever).

Death in Chicken Pox occurs mainly due to complications. Children hardly have complications and recover faster as compared to adults.

One attack of chicken pox leads to life long protection against it.

What to do if someone develops Chicken Pox ?

- If possible, isolate the patient in one room of the house. Don't send the child to the school for atleast one week after development of rash. This way, others can be protected from this disease.

- Allow the patient to rest. He/she should use a handkerchief on the face and nose while sneezing/ coughing.

- **Continue normal feeding of the patient. Don't stop food.**

- If itching is severe, one can give an appropriate medicine (like-phenergan) to relieve it. Ask a health worker.

- Don't allow the patient to itch with nails. This can cause bacterial infection of the skin lesions and can lead to pus formation in the skin lesions.

- You can give bath to the patient very gently (without scrubbing too hard on the skin). Use lukewarm water in which some

antiseptic solution (e.g., Dettol) has been added (10ml in 15 litres of water).

- Change the clothes of patient daily. Disinfect these clothes by soaking in boiled water and drying in hot sun after washing.

- "*Jhad-Phoonkh*" or "*Pooja-Path*" don't help in this disease also. Don't waste your time and energy on them.

- If an adult has developed chicken pox, rush him/her to the nearest hospital if –
  - Breathlesssness develops, cough and sputum formation increases.
  - The patient looks like losing consciousness or is behaving abnormally
  - The patient has convulsions
  - There is a severe pain in abdomen.
  - Any other unusual symptom develops.

Prevention of Chicken Pox by vaccination

Recently a vaccine against Chicken Pox has been introduced in the market.

Medical opinion is divided on the role of preventing Chicken Pox in young children by vaccination. Those against vaccination say that Chicken Pox is a mild and self-limiting disease without hardly any complications if it occurs in early childhood. One attack gives life long protection against subsequent attacks. So, the earlier the child gets it, the better it is. In other words, the disease acts as a natural vaccine against itself. According to them, it is a Why waste of so much money because the currently available vaccine is very costly (Rs. 1,400 for one dose: April 1999).

Those favouring vaccination say that the disease can lead to complications and hence every child must be immunized against it.

In short, there are yet no clear guidelines about vaccination against Chicken Pox. Till it is resolved completely, the author feels that the following suggestions can be followed:

1. If you can afford, give vaccination to all children (irrespective of age) if they have not yet got the disease by natural infection or you are not sure about the occurrence of chicken pox in the child.
2. All children above the age of five years and adults must be given this vaccine if they have not yet got the disease by natural infection.
3. All children, irrespective age, must be given this vaccine if they also suffer from cancer or are HIV positive.
4. Where it can't be afforded, children *below* the age of five years can wait till five years of age for the natural infection to occur.

Chapter 8

Measles

What is it ?

Measles is a highly infectious, killer disease of childhood that occurs with sudden onset and is characterized by fever and rash. This disease occurs only in human beings. It is an important cause of deaths and malnutrition in children in India.

What causes it ?

It is caused by a virus (Measles Virus). Many people believe it to be a "visit" by *Mata*. Obviously, that is not correct.

Who are mainly affected ?

It is a disease which affects mainly the young children between six months to five years of age. One attack of measles offers life long immunity.

Season ?

It generally occurs in winters and early spring in India (Janaury to April). It is a disease which occurs in sporadic as well as in epidemic form.

Spread

The virus is excreted by the case of Measles in the secretions of nose, throat and respiratory tract and spreads to susceptible children by direct contact (person to person) or through air droplets. To begin with, the virus enters through respiratory system.

It spreads very quickly among the susceptible population because initial symptoms of Measles (before the rash appears) are just like as present in common cold. The virus is excreted by the patient in this period also. That is why, it is so easy for the virus to spread in a community.

Incubation Period : 10 days.

Symptoms

Before the rash of measles appears, there are symptoms similar to Common Cold such as–

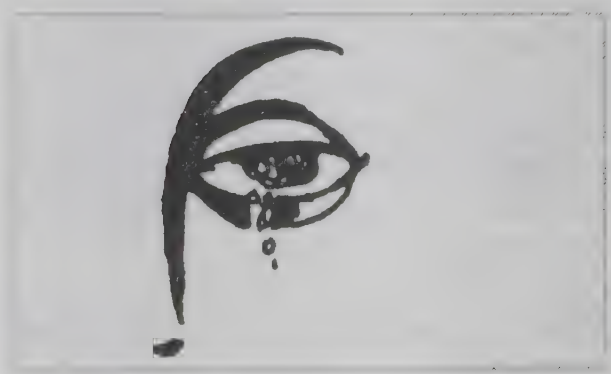
- Fever

- Running nose

- Cough

- Sneezing

- Watering and redness of eyes



These symptoms last for about 3-4 days. On the fourth day, the patient starts having a rash on the body.

Measles rash is dusky-red in colour and does not feel above the skin as

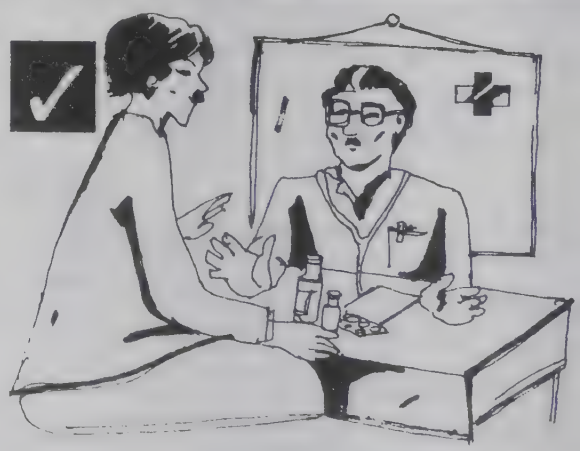
eruptions. Later, it spreads and becomes fine granular rash. It appears as if the child has been bitten by mosquitoes.

It starts from forehead, spreads to face, neck and extends down the body - taking 2-3 days to progress to lower extremities. Measles rash does not itch. About four days after the appearance of rash, the fever comes down. The rash starts disappearing and by 8^{th} – 9^{th} day, it disappears leaving black, brownish colouration of skin which can persist for several weeks and months.

Measles can be diagnosed easily by these symptoms. These symptoms are very different from Chicken Pox where liquid filled vesicles are formed in eruptions (rash). Such a thing does not happen in Measles.

What to do if a case of Measles occurs ?

- Report this to the local health authorities.
- Isolate the child for atleast five days after the rash appears because this is the period when the patient can transmit the virus to other children.
- Keep the patient in a clean, ventilated room.
- Take help from a doctor/ health worker for proper diagnosis of the case and give treatment as advised. Treatment is only symptomatic as it is a self - limiting disease.
- Many parents think that one should not give medicines to the Measles affected child as by doing so, the "Goddess Sheetala" will get angry. That is not a correct belief. For the child, it can be life threatening. Avoid seeking relief from measles by "*Jhad-Phoonkh*", "*Tabeez*", or other such things. **They don't help. Don't avoid medicines. Give them as per instructions.**



- **Don't stop feeding the child at any cost.** Continue normal feeding whatever the child was taking before the disease. Give lots of fluids to the child.
- Remember, Measles can leave a child very malnourished if proper feeding of the child is discontinued during this illness.

- Give wet sponge bath to the child. Change his/her clothes and keep the patient clean and cheerful.

- Most of the times, a child recovers from measles without any complications. However, certain complications can occur due to Measles. These complications are most often the cause of death in Measles. **So, for your child's sake, please watch for symptoms of Measles complications and seek help from a good, qualified doctor/ health worker if the child -**

  - Starts having diarrhoea/ dysentery
  - Has a bad cough and breathlessness
  - Starts losing consciousness
  - Has fits
  - Starts having discharge from the ears.
  - Has change in voice.

Prevention

It is a disease which can be prevented effectively by a vaccine.

Measles vaccine must be given to each and every child as soon as the child reaches the age of nine months. Just one dose is required. **If an epidemic of measles breaks out, the vaccine should also be given to all children between 6 months - 9 months in that area**. (Such children should be given *one more* dose at 15 months of age).

If a child has not got the vaccine at nine months of age, it must be given at the earliest. The vaccine can be given upto three years of age.

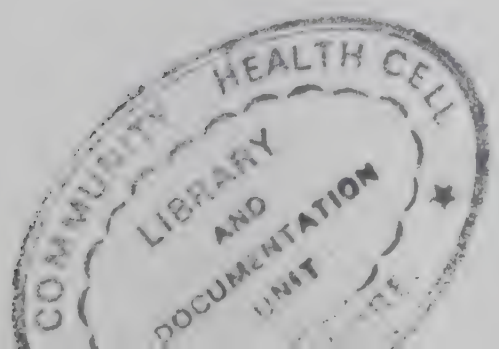
If an unimmunized child – who has not yet got the disease – gets exposed to a case of Measles, the child should be given one injection of Measles vaccine within 72 hours of exposure (no use after that). That can still prevent the disease or atleast make the disease less severe.

If a large number of children develop measles in an area, avoid sending children to these areas.

Children with measles should not be sent to school.

Don't allow un-immunized, unexposed young children to come in contact with a case of Measles.

Measles, like Small Pox, is a disease which can be eradicated. We may soon achieve this goal in India too – like many developed countries.



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Notes

Section Four

Miscellaneous

Chapter 9
Conjuctivitis (Eye Flu)

Chapter 10
Meningococcal Meningitis

Chapter 11
Viral Fever, Common Cold, Flu

Chapter 9

Conjuctivitis
(Eye Flu)

What is it ?

It is a highly communicable disease of the eyes which spreads rapidly and affects a large number of people in a very short period. Literally, conjuctivitis means infection of the conjuctiva (the transparent lining of the visible parts of eyeball).

Cause ?

It is most often caused by certain viruses and occasionally by bacteria that are difficult to be identified.

Spread

Eye flu is a highly contagious disease that spreads mainly by –

- Direct person to person contact
- Use of handkerchief, towel, clothes, goggles and other objects touched by the patient. Usually, the patient makes his/her fingers infected by touching them with the diseased eyes. The germs come on to fingers and get spread to other persons.
- Flies – which carry germs from patient's diseased eyes to the eyes of other persons.

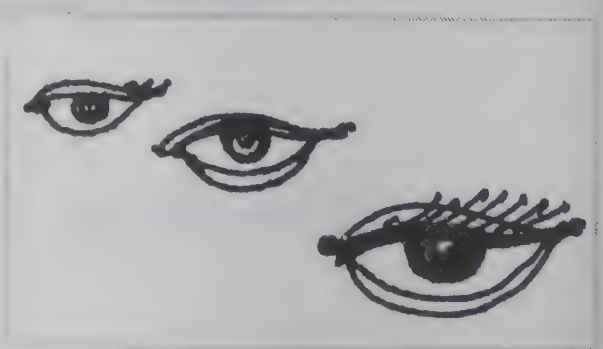
Incubation Period

It takes only a few hours to a maximum of about 24-36 hours for symptoms to develop after an exposure.

Symptoms

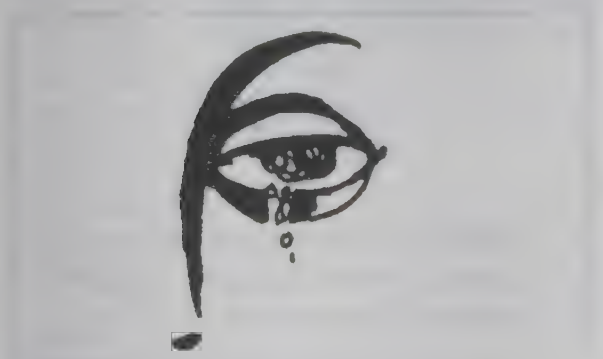
There are localised to the eyes only and consist of the following :

- To begin with, feeling of irritation, mild itching in the eyes.
- Person has "foreign body sensations" in the eye, i.e., a feeling as if something has fallen into the eyes.
- Soon, the eyes start becoming pinkish red. Gradually, the redness increases.
- Watering from eyes. Initially, it is clear and sticky. It may become yellowish and thick.



- Swelling of eyes.

- Eyes have discomfort and pain which is more when exposed to sunlight (photosensitivity).



- All these symptoms increase when exposed to sunlight. The person wants to avoid light.

Treatment

It is a self-limiting disease and does not have a specific treatment. Treatment is only for relief from discomforting symptoms. The following is advised –

- Splash your eyes frequently with ordinary, clean water. If you are not sure about cleanliness of water, boil the water for 15-20 minutes and cool it before using. As soon as your eyes start feeling sticky, wash them. General advice is to wash them after every 2-3 hours.

- Use astringent and antihistaminic containing eye drops available easily in the market. Put in 1-2 drops into each eye after every four hours. They relieve pain, discomfort and itching in the eyes.

  Don't use eye drops that have steroids in them (such as – Betamethasone, Hydrocortisone).

- If the eyes have yellowish, whitish thick discharge, you can start using eyedrops containing antibiotics – such as Ciprofloxacin, Gentamycin, Soframycin or Neomycin.

  Use 1-2 drops into each eye after every 3-4 hours till you recover.

- Wear dark glasses especially when going out in the sun.

- Generally, with these measures, this disease subsides within 5-7 days and examination by an eye surgeon is not required.

However, if you have even one of these symptoms, seek URGENT consultation with an eye surgeon–

- Blurring of vision (eye sight)
- Reduction in vision

- Pain in the eyes increases
- Double vision (one object appears as two)
- Swelling of the eyes is too much.
- The condition does not subside within seven days.

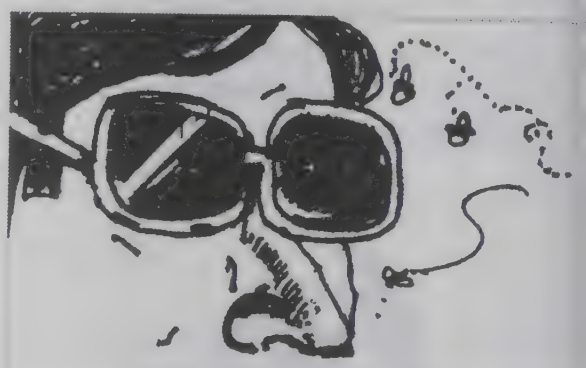
- The patient should not touch his/her eyes. Keep handkerchief and towels, goggles etc. of the patient separate from other person's objects.
- Oral medicines don't help in this condition. At the most, a tablet of paracetamol can be taken if there is too much headache or pain.

Prevention

You can prevent eye flu. Please follow these suggestions –

- Don't use the objects touched/used by the patient (e.g., handkerchief, towels, clothes, pillows, bedsheets, goggles, pens etc.)

- If you are helping the patient in putting eye drops into his/her eyes, always wash your hands thoroughly with soap and water – after every time you touch his/her eyes.
- Don't touch your own eyes. If you have to do it, do it only afte washing your hands thoroughl with soap and water. Remembe even water taps, mugs handled b the patient with dirty fingers ca spread this disease to others. Tak precautions for that also.
- Protect your eyes from flies. If yo wish, you can use goggles.



- Avoid overcrowded places like buses, trains, markets, fairs in a epidemic of eye flu.

- Frequently wash your eyes by splashing them with clean water.
- Children have to be clearly taugh all these precautions so that they don't become easy victims.
- Take measures to control flies in the house.

With these simple measures, eye flu can be prevented and the epidemic overcome successfully.

Chapter 10

Meningococcal Meningitis

(Cerebro-Spinal Fever)

What is it ?

It is an acute, communicable disease caused by a bacterium called *as Neisseria meningitidis.* It usually begins with intense headache, vomiting and stiff neck and progresses to coma within a few hours.

If left untreated, the mortality rate is 80% . It occurs in sporadic and epidemic forms throughout the world.

Cause ?

A bacterium called Neisseria meningitidis. There are many sub types of this bacterium such as A,B, C, D, X, Y, 29E, W135 etc. Epidemics are usually caused by Group A and C bacteria.

Who are affected ?

It is a disease that affects young children and young adults of both sexes. Overcrowding, as occurs in schools, barracks, refugee camps etc. facilitates spread of this disease. It occurs more in low socio-economic groups living under poor housing conditions.

Season ?

It occurs most frequently in cold and dry months of the year, i.e., from November to February.

How does it spread ?

Meningococcal meningitis spreads mainly through the air droplets that gain access into the body with breathing. These germs reside in back portion of the nose and throat of a case. More importantly, there are many persons who themselves don't suffer from the disease but have these bacteria normally residing in their nose and throat ("carriers"). Carriers are very important sources of spreading this disease to other persons.

Incubation Period : Usually 3-4 days.

Symptoms :

- Sudden onset of high fever associated with very severe headache, vomiting, pain and stiffness in the neck. The patient is very restless and irritable.
- The disease progresses very rapidly and within a few hours, the

patient develops fits and may become unconscious.

What to do if Meningitis is suspected ?

If symptoms as mentioned above develop in a person, don't waste time. Rush this patient to a hospital at the earliest because if the disease is diagnosed early, prompt treatment can be started and many deaths can be prevented. Good antibiotics are available these days to treat this disease.

Delay in treatment can be fatal.

Prevention

- If a case of Meningitis occurs in an area, **immediately inform the local health authorities so that steps can be taken to prevent spread of the disease.**
- Family members or any one who has come in close contact with a patient should take medicines for prevention of occurrence of the disease.
- Capsule of Rifampicin or tablets of Sulphadiazine are to be taken by such persons.

Doses for adults :

Cap Rifampicin (600 mg) : 1 Capsule after every 12 hours (Morning & Evening) for two days. (To be taken empty stomach).

Tab. Sulphadiazine (500 mg) : 1 gm. – Twice a day for two days.

Vaccination

Except the children below two years of age and pregnant women, all other persons can take Meningitis Vaccine. One dose (injection) needs to be taken. Repeat after three years. If an epidemic is going on, vaccination helps in prevention.

Other measures

If an epidemic is going on, it is advised that persons must cover their nose and mouth while sneezing or coughing.

Good ventilation in houses helps in prevention.

Avoid overcrowded places like buses, trains, cinema halls, markets etc. during an epidemic.

Chapter 11

Viral Fever
(including Common cold, Flu)

What is it ?

A large number of viruses are present around us in our environment and keep attacking our body. Some of them are able to produce an illness which results in fever and some other symptoms like common cold in the body. As these viruses are difficult to identify and don't produce a specific illness, most of such fevers are labelled as "Viral Fever" in absence of a specific diagnosis. Generally they occur for a period of 5-7 days and subside by themselves without leaving any significant damage in the body.

What causes it ?

Certain viruses which are not identifiable.

How does it spread ?

Most of the times, Viral fever spreads from one person to other person directly through air droplets which are excreted by the patient in large doses through sneezing, coughing or breath.

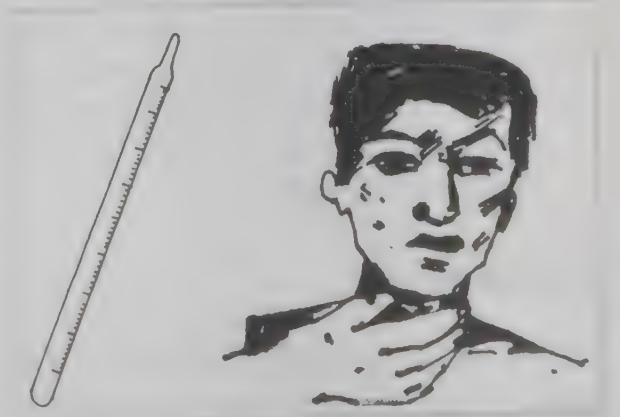
At times, some mosquitoes also help in spreading this fever.

These fevers spread very rapidly and just in a few days, affect a large number of people. It is not surprising that they almost acquire an epidemic proportion in an area and often affect a large geographical area. Due to easy and rapid mobility of people, they often spread fast and to far off places.

Incubation Period : Very often a few hours to 2-3 days.

Symptoms : The symptoms are often variable. However, the commonest symptoms resemble those of common cold, influenza or even Dengue fever. Quite often, such fevers are labelled as "flu" or "Viral flu" :

- Onset of fever which can go upto 105°F to 106°F. It can persist for 5-7 days. With fever, irritation



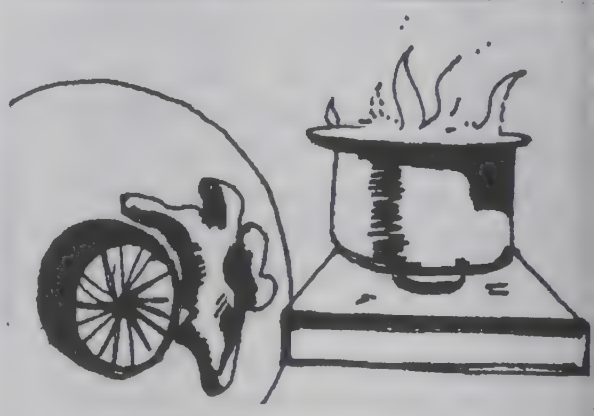
("*khich-khich*") or pain in the throat may be present.

- Bouts of sneezing and coughing with running nose and redness of eyes.
- Headache
- Body aches and joint pains
- Loss of appetite, change in taste sensation.
- Lack of mood to do any work.
- Fatigue and feeling of weakness
- A pinkish, fine granular rash on the face, chest or arms may also be seen in many patients with Viral Fever though this is difficult to see in people with dark complexion.

Treatment

There is no specific treatment for such viral fevers. Just treat the symptoms. For example – if ther is sore throat, do warm salted wate gargles; - for fever, headache an body pains take paracetamol tablet syrup (**avoid aspirin**) (***Se Annexure 2***).

- Take lots of warm fluids like warm water in which juice o ginger and lemon has beer added



- If the nose is blocked, take steam inhalation and put saline nasal drops. (***See Annexure 4***).

- Continue normal feeding. Give the patient soft, easily digestible food without too much spices or chillies.
- Take anti-allergic tablets/ syrup if

prescribed by a health worker.

- Always get a blood slide made for malaria parasite so as to rule out malaria. If fever is the only symptom, it is advised to take anti-malarial drugs also.

- If there are only fever, cough and cold, headache and body or joint pains and there are no other symptoms which suggest any other disease like Malaria or Typhoid Fever, recovery should take place within 6-7 days. If these symptoms don't subside within 7 days with symptomatic treatment or any other new symptoms develop, please seek prompt medical attention.

- Bed rest helps in faster recovery from the disease. Avoid very cool foods such as ice creams or cold drinks during the illness.

Prevention

It is very difficult to prevent Viral Fever. However, take some precautions like avoiding close contact with people who have common cold or sore throat. Don't use handkerchief or towels of those who may be suffering from such diseases in the family. Avoid visits to overcrowded places during an epidemic of the disease.

Take precautions to prevent mosquito bites.

Build up your body resistance by eating a good, balanced diet; exercises and eating lots of fresh fruits especially oranges, sweet lime (*mausambi*) and seasonable vegetables.

Avoid frequent change of cold and warm weathers – for example – avoid going to warm weather from cool rooms and vice-versa.

Notes

Part Two

Non-Communicable Conditions

Chapter 12
Epidemic Dropsy ("*Jalandar*")

Chapter 13
Heat Stroke ("*Loo Lagna*")

Chapter 12

Epidemic Dropsy

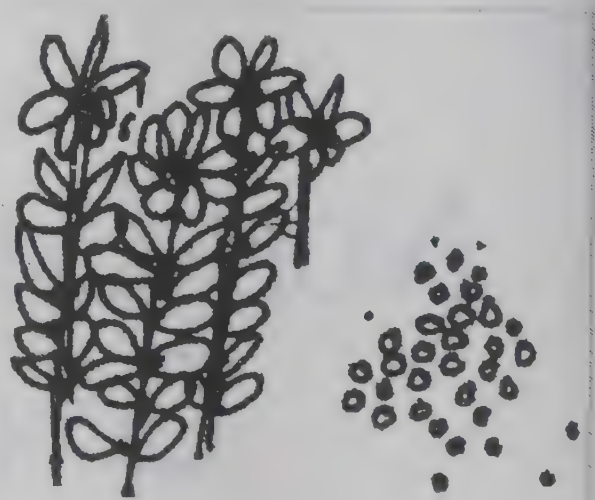
("Jalandar")

What is it ?

Epidemic Dropsy or "Jalandar" is a condition which develops suddenly in those persons who have consumed edible oils contaminated with extracts of a wild plant called *Argemone mexicana*. Consumption of any edible oil such as mustard oil, vegetable oil, sunflower oil etc. or ghee (vanaspati)

made from these oils which have been contaminated (adulterated) with *Argemone* extracts can lead to Epidemic Dropsy. This adulteration can be intentional by unscrupulous traders or accidental.

Argemone mexicana is a small wild plant commonly called as prickly poppy or "*satyanaashi*". This plant grows as a weed in large numbers in Northern India. It is a very tough and hardy plant which grows well even if there is water scarcity. It has thorny leaves, bright yellow flowers and bears small poppies as fruits. The poppies contain small seeds – almost identical to the mustard



seeds in colour and shape. Seeds when crushed produce an oil, which resembles the mustard oil. However, the oil of *Argemone* is very pungent in taste and smell.

As there is hardly any investment required in procuring Argemone seeds, some unscrupulous traders mix them with mustard oil/ other oils to make quick money – even if at the cost of people's lives. Many a time, Argemone seeds simply get mixed with mustard crop in the field during

harvesting because both mature almost at the same time of the year.

What causes it ?

Argemone oil contains a highly toxic substance called sanguinarine. Even a small quantity (*as small as 0.01% in oil*) is enough to produce symptoms in human body.

Time required for symptoms to appear

This depends on the quantity and duration of the adulterated oil used. The larger the quantity, the earlier is the development of symptoms.

Symptoms

It can affect any one (age, gender no bar) who has consumed the adulterated oil. The patient has one or more of the following symptoms –

- Sudden onset of swelling in the legs (around ankles) without any other apparent cause.

- It may be associated with loose motions.
- Soon, the heart gets affected and the patient starts having breathlessness which progressively increases.
- If not treated in time, death may follow.
- Some patients also develop glaucoma in the eyes which manifests as pain and discomfort in eyes with rapid loss of eyesight.

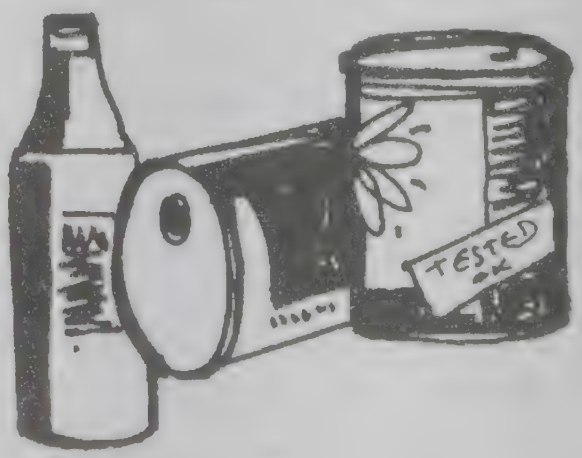
Treatment

There is no specific treatment for this disease. If some one is suspected to be developing Epidemic Dropsy, he/ she should be rushed to a hospital where appropriate treatment for treating the life threatening symptoms will be instituted.

Death rate varies from 5 to 50%.

Prevention

- Chances of oil being adulterated with Argemone oil are greater when oil is sold loose in the market. Hence avoid buying edible oil being sold loose. Always buy tinned/ canned edible oils which are sealed. These days, it is compulsory for the



manufacturers to sell only that oil which has been tested for Argemone. Every pack, tin or bottle must carry such certification. **Buy only certified oil.**

- If some one is noticed to develop symptoms suggesting Epidemic Dropsy, please inform the local health/ municipal authorities at the earliest.

- If you suspect oil to be adulterated or for your own satisfaction (especially if cases of Epidemic Dropsy have been reported), you can get the oil samples tested in the Department of Pharmacology of any medical college or the local laboratories of Health or Food Departments.

Three types of tests are performed on the oil sample –

- Nitric Acid Test
- Thin Paper Chromatography Test (TPCT).
- Ferric Chloride Test

The last two are better tests.

Nitric Acid Test can be performed at home also by this method :

- Take 4-5 ml of Nitric Acid in a glass test tube
- To this, add 2-3 ml of oil sample to be tested.
- Shake the tube well once or twice.

Development of a brown to orange red colour ring at the junction of Nitric Acid and oil indicates presence of Argemone adulteration in the edible oil sample.

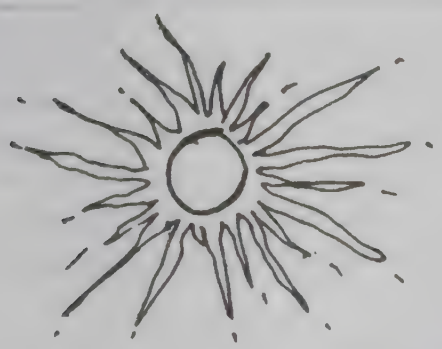
If you ever come across an edible oil sample found to be adulterated, it is your moral duty to inform the Deptt. of Prevention of Food Adulteration as well as the Police at the earliest. **Such calamities can only be prevented with proper public cooperation.**

Chapter 13

Heat Stroke
("Loo Lagna")

What is it ?

- Commonly called as "*Loo lagna*" or Sun stroke.



- It is a serious, life threatening condition which results when a person is exposed to hot sun or heat wave conditions for longer periods without adequate fluid intake. Quite common in Northern and Eastern parts of India in the months of April, May, June, July. Excessive loss of fluids and salts through sweating results in this condition.

How to identify ?

In a hot season, it is easy to identify a victim of Heat Stroke. The person feels uneasy and suddenly collapses. There is no sweating on the body. Body temperature is very high but hands and feet are cold and clammy. Patient has headache. Eyes, mouth and lips of the patient are parched and dry.

The person may lose consciousness rapidly and go into coma.

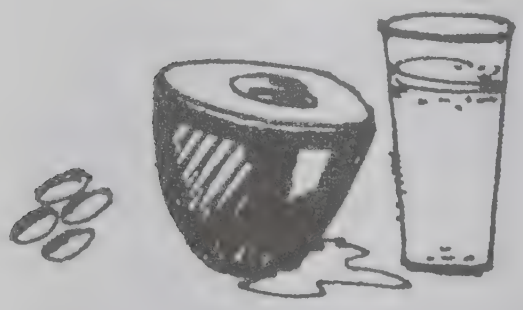
First Aid to Heat Stroke Victims

1. Shift the patient in a shaded, cool area under a fan or a room cooler.

2. Loosen the clothes of the patient and allow him to breathe freely. Don't crowd around the victim.

3. Splash cool water on the face and body. Wet sheets of cloth in cold water and drape them around patient's body. Keep repeating this after every 10-15 minutes (even on way to a hospital).

4. If the patient is conscious, give him/her plenty of liquids to drink e.g., water, *lassi*, *shikanji*, coconut water, ORS solution etc. Give a tablet of paracetamol for fever (**Annexure : 2**).

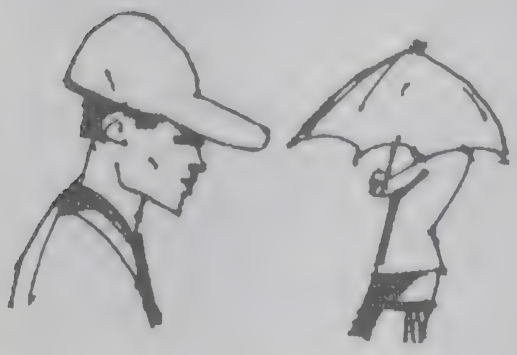


5. If the patient is unconscious, bring body temperature down by methods mentioned in point no. 3 and rush the patient immediately to a hospital. **Don't force liquids into an unconscious patient's mouth.**

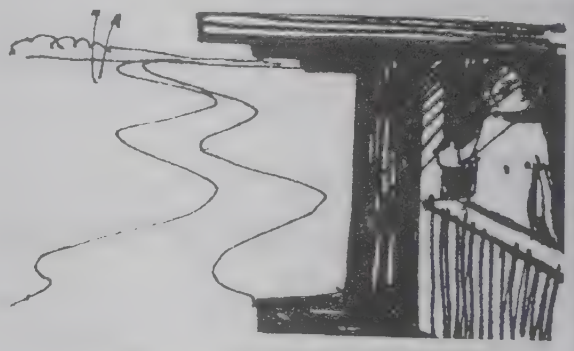
Prevention

You can avoid Heat Stroke by following some common sense precautions –

- Avoid going out in blazing sun in the months of April, May, June, and July. Don't allow children to play in the sun in these months.

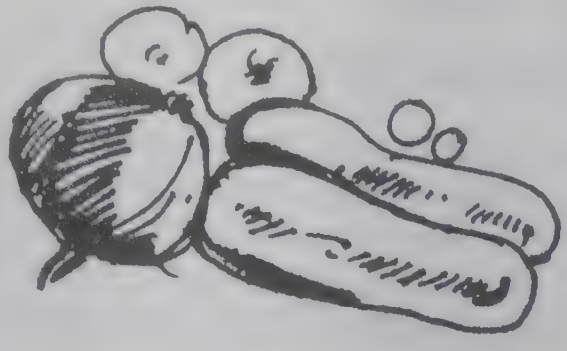


- If you have to go out, wear a cap or tie a cloth on head and/or use an umbrella. Don't remain in the sun for continuously long periods. Keep resting in the shade intermittently.



- Keep drinking lots of liquids at frequent intervals. Take water, lassi, sugar - salt solution, shikanji, coconut water etc. Carbonated cold drinks don't help too much. Restrict their use.

- Eat lots of onions and cucumber in summer months. They help in preventing Heat Stroke.



Part Three

ANNEXURES

Annexure 1

Administration of Chloroquine (anti-malarial)

Annexures 2

Giving Paracetamol to patients with fever

Annexure 3

Hydrotherapy

Annexure 4

Steam Inhalation & Making Nasal Drops at Home

Annexure 1

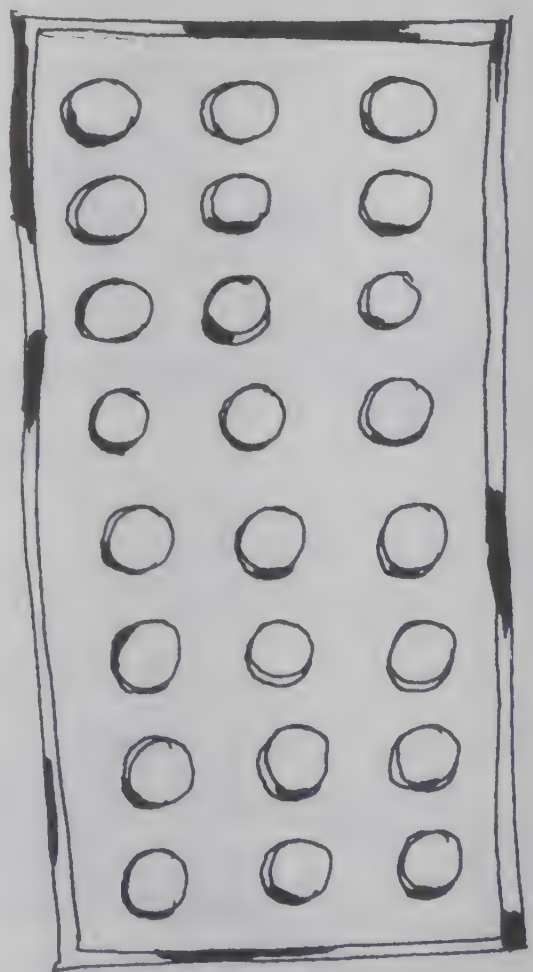
Administration of Chloroquine
(anti-malarial drug)

Chloroquine is a commonly used drug for treatment of Malaria fever. Non-health professionals can also give it to those patients who have symptoms resembling Malaria. That is a Govt. of India policy also. That is why, all of us should know the doses of this medicine. One tablet of chloroquine has 150 mg base.

Remember this formula :

Age of the patient	Dose (No. of Chloroquine tablets)
0 – 1 year	½
1 - 4 year	1
4 – 8 year	2
8 – 14 years	3
More than 14 years	4

- **The entire dose has to be given in one single dose.** Children can be given the tablet dissolved in some water. Alternatively, give syrup of Chloroquine. **Dose for syrup :** For each Kilogram body weight, give 10 mg of chloroquine. Normally 40 mg is present in 1 ml of syrup, so calculate the amount of syrup accordingly.
- **Never** give chloroquine on empty stomach. Take it only after meals – take it with milk.
- While the patient is on chloroquine, give him/her, plenty of fluids to drink.



Annexure 2

Giving Paracetamol to Patients

Paracetamol is a very effective and safe medicine for relief from fever, bodyaches, headache and joint pains. It is available in tablet, syrup and drops form. If it needs to be given, the instructions are as follows :

For adults

One tablet (500 mg) only after meals. Repeat the dose after every 6-8 hours, if needed.

For Children

Give 20 mg of Paracetamol per Kg of body weight **in one dose**. Repeat similar dose after 6-8 hours. The tablet can be divided according to the dose required and given after dissolving in water

OR

Give syrup as per the dose calculated by the formula given above, i.e., 20 mg Paracetamol per Kg body weight **per dose**. 5 ml of syrup contains 125 mg Paracetamol. Give the required quantity of syrup after shaking the bottle before every use.

Important :

Give this medicine carefully in those patients who have kidney or liver disease.

Aspirin is best avoided for treatment of fever in children below 12 years of age.

Annexure 3

Hydrotherapy

Hydro means water; therapy means treatment. Thus Hydrotherapy means treatment with water. It is used as a non-medicinal method –

- To bring down fever quickly – if it goes above 102°F.
- To bring down fever in those patients where anti-fever drugs can't be given due to any reason.

Fever should not be allowed to go above 102°F – especially in children because high fever can cause fits (convulsions). If high fever persists for a long period, it can cause brain damage and even death – so control the fever.

How to carry out Hydrotherapy ?

- Remove the clothing of the patient to minimum possible.
- If patient feels comfortable, switch on the fan and/ or a room cooler.
- **If fever is 104°F or less :** Use ordinary tap water.

If fever is more than 104°F (e.g in Heat Stroke) – use ice cold wate

- Take the required type of water. patient is conscious, make him/he sit and give a bath with water b pouring it **all over the body** fo about 10 minutes or so. Otherwise soak pieces of cloth (lik handkerchief, towel, bedsheet) i water, remove extra water an place **all over the body** for 1 minutes. Remove it. Repeat th process till fever comes down.
- If fever is very high – along wit above mentioned process – tak small ice-cubes and wrap them i pieces of cloth. Put them in both th armpits and palms of the patien This helps in faster reduction c fever.
- If patient can drink, give plenty c cold fluids to him/her (especially t Head Stroke patients).

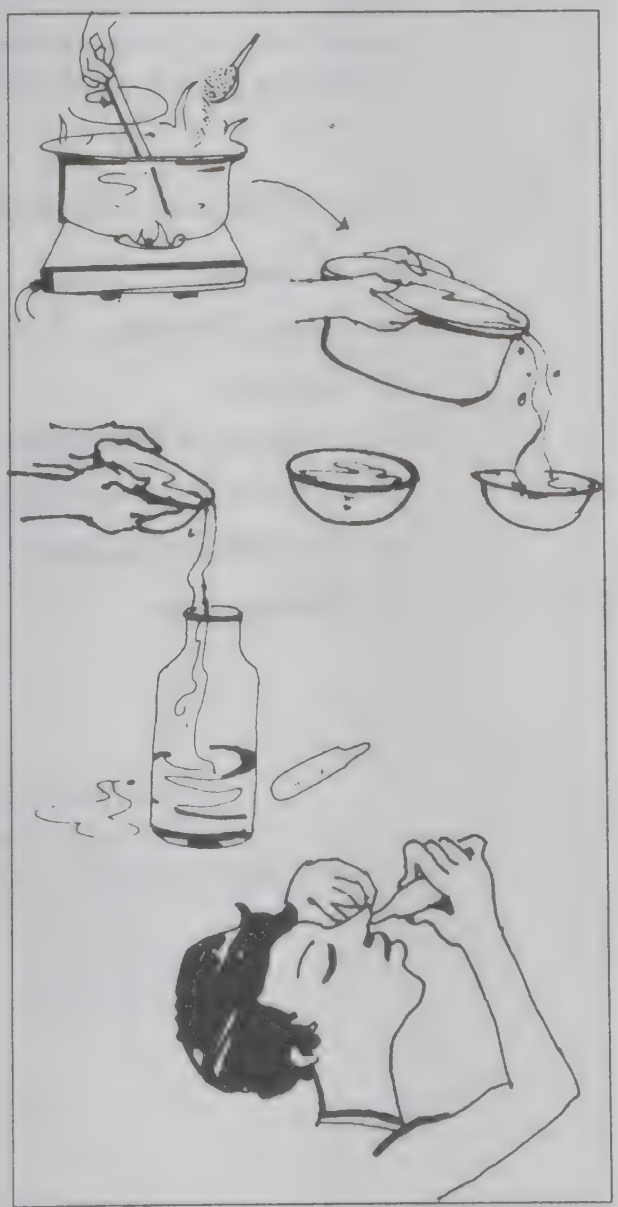
Steam Inhalation & Making Nasal Drops at Home

Steam Inhalation
It is an effective and cheap method of clearing the blocked respiratory passages and provides good relief in the symptoms of cold, cough and sinusitis (infection of the nasal sinuses).

Procedure: For steam inhalation, boil 3-4 mugs of water in a bhagona. Sit on a chair. Put the bhagona with steaming water on the floor and cover yourself and bhagona in a "tent" of a bedsheet. Keep taking slow and deep breaths. Keep your eyes closed in the process. Do it for about 10-15 minutes at a stretch atleast twice in a day. (It also acts to help in cleaning the blocked pores on the face). For steam inhalation for young children, sit on a chair with the child in your lap. The rest of the procedure is same as above. Even if the child cries, still do it.

Alternatively, you can close all doors and windows and then boil water in a *bhagona* in one corner of the room itself. Allow the steam to spread in the room for about 30 minutes. Keep taking deep breaths.

Making Nasal Saline Drops at Home
These are used for relieving the symptoms of a blocked nose. You can make Nasal Saline drops at home. For this, boil water (about 200 ml) in a *katori* and add one teaspoonful (5 gm) common salt and stir well. Cool it and put the solution in a clean bottle. Use it with a dropper. Don't use such a solution two weeks after making it.



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Voluntary Health Association of India (VHAI) is a non-profit, registered society formed in the year 1970. It is a federation of 24 State Voluntary Health Associations, linking together more than 4000 health care institutions and grassroots level community health programmes spread across the country.

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He has also written several books and booklets and was awarded the National First Prize by Ministry of Health and Family Welfare, Govt. of India in 1996 for one of his books in Hindi "*Bachchon tatha Mataon ka Swasthya aur Poshan*". He has also authored as well as transtated a few books for VHAI.

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